

# MANUFACTURERS' RECORD.

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## Gold-Mining in North Carolina.

By George B. Hanna, U. S. Mint, Charlotte, N. C.

### II.

#### RANDOLPH COUNTY.

Randolph county, like Montgomery county, abounds in mines, and not less than thirty are well known. Of these the more noted are the Sawyer, Winslow, Lafflin (or Herring), Jones (or Keystone), Davis Mountain, Winningham, Slack, Graves and Hoover Hill. All these mines are in the "slate," and the belts are probably continuous with the western ones of Montgomery.

The Jones (or Keystone), the Lafflin (or Herring) and the Delft are quite similar in character, and a description of the Jones will indicate the characteristics of the others. It has been very largely worked. This mining tract has 293½ acres and is twelve miles nearly southeast from Thomasville. The schists are soft and weathered to a great depth, which has brought about a peroxidation of the ferruginous constituents. Gold is universally present, but the mining is confined to certain richer belts. Occasional masses are charged with finely disseminated iron pyrite, slightly altered. The working strata differs little from the unworkable. Two of these belts have gained especial prominence, one being fifty feet wide, and the other 110 feet. The mine is simply a series of ore quarries and is worked "open cut" as a quarry. The disintegrated condition of the rock or soil allows of mining at a marvellously cheap rate, frequently not exceeding fifteen cents per ton of ore delivered at the millhouse. The material is low grade, but it changes perpetually in its contents, and bodies of relatively high grade may be met at any time. Assays give \$2.07 to \$28.94 per ton. Strict averages of large bodies give fairly uniform assays, so that it may be said with fairness that the average of working bodies will not fall under \$3.00 per ton. The treatment is by stamp battery, but hydraulic methods might also be pursued if a cheap supply of water were available.

The accompanying diagram represents the last-named Jones mine in cross-section. It is simply an open cut in the side of a hill fifty to seventy feet high formed by a ravine which has cut across the strike of the formation. The workable strata between *a* and *a'* differ imperceptibly from the bounding rocks and they pass insensibly into each other, the outside strata becoming gradually more heavily bedded, hard and quartzose. Within the worked area there are lean strata that are harder and thicker and more quartzose or chloritic, as at *b*, *b'*, *b''*. At *d* a portion of the strata is charged with a fine-grained pyrite that sometimes constitutes a large percentage of the rock for two or three feet in thickness. At *c*, *c'*, *c''* portions of the strata are crusted with ferruginous scales and limonite resulting from the decomposition of pyritous masses of slate. This mine may be taken as a type of an extensive zone of mines that extends even beyond the Yadkin and into South Carolina, including the well-known Brewer mine.\*

The Parrish mine adjoins the Jones.

\* W. C. Kerr, in "Transactions American Institute Mining Engineers," vol. X, p. 476.

The ore body is hornblende and chloritic, and sometimes very rich, assaying from \$14.90 to \$88.50.

The Hoover Hill mine is located seventeen miles nearly south from High Point and comprises 250 acres. In its early days operations were very profitable. The "county" is apparently an altered schist, very hard and compact, traversed by belts abounding in quartz seams, and, both above and below, these belts have been the productive part. The old "Briols Shoot" was the most productive, and is now down 350 feet. The gold is uniformly associated with the quartz seams. Iron pyrite is generally present to the extent of 3 per cent. The Wilson Kindley mine is one-half mile southwest. The Redding mine, near the Hoover Hill, has been opened recently, and has yielded some fine nuggets.

It will easily be seen from the above brief description of Montgomery and Randolph counties that the extent of the auriferous wealth is beyond our present power to estimate. Probably no other equal area of the State has anything to compare with it.

The solution of the problem of putting these vast and unique stores of gold into the channels of commerce lies, if a conjecture may be hazarded, not so much in the introduction of any new "process," which will supersede amalgamation, as in the cheapening and perfecting the art of mining, and in the increased efficiency of the



JONES MINE—AURIFEROUS SCHISTS.

modes of amalgamation, with chlorination as an auxiliary, following a well-devised system of concentration. Hitherto only milling and amalgamation have been practiced, with some slight attention to concentration.

#### STANLY COUNTY.

In Stanly county the more noted mines are the Haithcock and Hearne, two miles northwest from Albemarle. The Haithcock is the northern extension of the Hearne, and itself merges to the northeast into the Lauder.

The Parker mine, at New London, embraces four mining tracts, aggregating 827½ acres, and is in the midst of a very important mining district. There are three well-known veins on this tract, and large areas of valuable "gravel," which is not only diffused generally over the surface, but is largely concentrated in the beds of the various streams running through the properties. This gravel contains from eleven to nineteen cents to the cubic yard, and the quartz and vein matter assays from \$4.23 to \$7.38 per ton. The Crowell mine is near the Parker. The Barringer mine is near Gold Hill. A part of the Gold Hill district is in Stanly county.

#### UNION COUNTY.

The mines of Union county are readily traceable in alignment with Gold Hill, Silver Hill and other mines of Davidson county, and are for the most part comprised in this belt, which stretches in close prox-

imity to the "granite area" along its eastern edge. This belt commences about the middle of the eastern boundary of Davidson county, and extends seventy-five miles southwestwardly to South Carolina, and most of this stretch from Gold Hill southwardly is, with scarcely a break, crowded with mines. The ores are readily classified into auriferous and argentiferous galena, auriferous pyrite, and auriferous slates with disseminated sulphurets.

The Washington mine, eight miles southwest from Monroe, is the most southerly of the important mines of the county. The Wyatt is one-fourth mile west of the Washington and is probably part of the same vein. The Howie is one mile and a-quarter northwest of the Washington and has been worked to a depth of 300 feet. The ore is quite like that of the Washington, and has numerous seams of quartz, which is generally associated with the richer ores. The yield of this mine has been estimated at \$750,000. The vein is 400 feet wide. The working ores assay from \$2.05 to \$43.06 per ton. Between the Howie and the Davis, two and a-half miles northeast, are no known mines. Then occur the Davis, Phifer, Lewis and Hemby nearly in the same alignment—a stretch of nearly two miles. The whole deposit has been enormously rich, especially the Phifer. In this immediate neighborhood are the Moore Hill, Harkness and Folger Hill. One-half mile northeast of the Hemby is

tion of nuggets, both for number and size, has never been paralleled on this side of the continent. There are also several veins on this tract of 780 acres.

The Phoenix mine, eight miles southeast from Concord, had reached a depth of nearly 400 feet when the growing difficulties of working it led to its abandonment. The Thies chlorination method was developed here and used successfully for several years in connection with the ordinary mill treatment, and resulted in the economical extraction of gold to a high percentage (90 to 95 per cent). The whole establishment was a model of skillful and successful adaption of familiar methods; assays \$8.27 to \$63.01 per ton.

The Joel Reed mine, in the edge of Concord, has been worked successfully on a small scale for a long time. The Allison and the Montgomery mines, two miles north of Concord, have been profitably operated.

The McMakin mine (or silver vein), in the Gold Hill district, had reached a depth of 181 feet, when the war caused a suspension of work. The ore is complex—blende, galena, pyrites and highly argentiferous tetrahedrite. Assays run from twelve to 500 ounces of silver per ton.

This Gold Hill district is the most noted as well as the most productive in the State. It is situated in the southeastern part of Rowan county and the northeastern corner of Cabarrus, and overlaps slightly into Stanly. It is nearly one mile and a-half long from northeast to southwest, and two-thirds of a mile wide. The striking characteristics of this district are the great permanency of the veins and the variety and richness of the ores. The entire series is situated on the narrow plateau of a low-lying northeast and southwest ridge, and is one mile east of the granite, and in close contact with a diorite group to the east. The prevailing rock is a chloritic argillaceous schist. There are at least ten well-defined veins in the district, prominent among which are the Randolph, Hunnicutt, Barnhardt, Open Cut, Trautman and McMakin, but closely associated are outlying bodies which may be independent veins.

The Randolph vein, nearly the extreme northwest mine of the group, is par excellence the Gold Hill mine, and has been worked a linear distance of 1500 feet and to a depth of 740 feet. The accompanying map shows fairly well the extent of the work done in the Randolph vein. There are three principal shoots of ore which have been exceedingly rich, but in the lowest levels they have become of lower grade, though still abundant.

The Barnhardt, 400 feet to the east of the Randolph, is worked to a less depth. The ores are like those of the Randolph. The Standard vein has been worked to a depth of eighty-four feet. The body of ore is comparatively wide. The Trautman gold vein was worked to the depth of twenty-four feet as a gold mine, but below this level and down to sixty feet a variety of lead minerals occurred. This vein is nearly at the extreme southeast of the group.

#### DAVIDSON COUNTY.

Very little mining work is now done in this county, and only the more important mines will be briefly alluded to.

The Lalor (Allen) and Eureka are at Thomasville.

The Conrad Hill is seven miles east of Lexington with seven veins, of which six have been worked, ranging from two to fifteen feet in width. The vein matter is quartz, chalcopryite, with various copper minerals, resulting from decomposition. Carbonate of iron is a common accompaniment, but, excepting the latter, the mine matter is remarkably destitute of all distinctive iron minerals. The operations looked to a final production of gold bullion and refined ingot copper. The general course of metallurgical treatment was as follows: The mine matter, after the usual cobbing, etc., was picked and the richer ore sent to the copper works. The residues after passing through a Blake crusher were jigged and the best material added to the above richer material. The poorest stuff from the jigs was rejected and the medium grade sent at once to the stamp mill and amalgamated as usual. The tailings were concentrated and the concentrates sent to the copper works. The material rich in copper was, after roasting, smelted in a shaft furnace for matte, from which after re-smelting, etc., a black copper was obtained

The raw ore contains:

Gold, per ton.....	trace	\$4 13	trace
Silver, per ton.....	\$13 30	150 15	\$32 45
	\$13 30	\$154 28	\$32 45
Lead, per cent.....	15.59	55.25	38.80
Zinc, per cent.....	31.45	11.24	32.00

More recently the ore has been used for a mixing ore at the smelting works at Thomasville.

The Silver Hill mine is ten miles southeast of Lexington. It was originally known as the Washington. Here are two nearly parallel veins, with some large but subordinate bodies. At the commencement the vein was supposed to be a gold vein, but at the depth of eighty feet it was found that the vein was lead-bearing silver ore, with gold as an incidental. Ultimately the ore was found to contain argenteriferous blende and galenite. Analyses show for the compact galena:

Gold, per ton.....	\$4 14	\$6 20	\$4 13
Silver, per ton.....	2 75	9 17	9 55
	\$6 89	\$15 37	\$13 68
Lead, per cent.....	22.94	56.72	12.57
Zinc, per cent.....	7.14	.....	34.29

The following mines may be mentioned as not being capable of grouping: The Hamilton and the Jesse Cox mines, in Anson county, near Wadesboro. The ores of the former assay fairly well.

#### GUILFORD COUNTY.

In Guilford county are found the following mines: The Fisher and Millis Hill, Hodgins, North Carolina (or Fentress), the Gardner, the Twin, North State (McCullough), Lindsay, Jack's Hill, Deep River, Beason, Harland and Beard. None of these are now worked.

#### ROWAN COUNTY.

The mines in this county in the slate belt have been described in the mention of the Gold Hill district. There is an approximation to belts in the mines of this county. One of these belts is found to the southwest of Salisbury, comprising, among others, the Hartman, Yarkin, Negus, Harrison, Hill, Southern Belle (Aldrich), Goodman, Randleman and Roseman. The workings in most of these have been comparatively shallow.

A second belt occurs two and a-half miles east from Salisbury, prominent among the mines being the Dunn Mountain, New

Naturally our dealers do not wish to give up their present trade in Pennsylvania anthracite and antagonize the producers unless they have an absolute assurance of a steady supply for all the trade they can work up during a period of years, and this alone is the difficulty which has not been as yet satisfactorily settled. The price at which Welsh coal can be delivered and its quality are satisfactory, as we stated, but until a 10-year contract can be made no important business is likely to be attempted. Whether the English producers will concede this point we have no means of knowing, but that serious business is contemplated if they do is beyond all question, as our coal combination will no doubt appreciate in due time.

#### Deepening Aransas Pass.

The MANUFACTURERS' RECORD is in receipt of an interesting communication which describes the progress of the scheme to deepen Aransas Pass, Texas. An opportunity is afforded a syndicate of capitalists who will undertake the work to realize a large profit on their investment. The communication, which is from Mr. C. W. Booth, secretary of the committee in charge of the improvement, is as follows

ROCKPORT, TEXAS, October 10.

Editor Manufacturers' Record:

We have authority to donate land now valued at \$400,000, also a State grant of land on the harbor, to any responsible parties who will sign contract to open Aransas Pass to a specified depth. In addition to this we will probably be able to secure an additional donation of \$200,000 from land owners in the vicinity of the pass as soon as operations begin. Much of the property lies on the water and will more than double in value when the improvements are completed, as it can be used for wharf sites, etc. According to surveys the maximum cost of the improvements will not be over \$300,000. The only requirement of the parties undertaking the work is, that they shall give references showing their responsibility and shall deposit \$2500 as a cash guarantee to begin the work within the time specified in the contract.

Aransas Pass has been shown by the report of the government engineers to be one of the most naturally favored harbors on the coast, as a channel can be excavated at a comparatively small outlay. It is a land-locked harbor having at present from twenty-five to forty feet of water and a land frontage of four miles, all of which is suitable for wharves, etc. Two miles of this waterfront are offered the company which will deepen the pass.

Offers by telegram with tender of cash guarantee of \$2500 will be considered *bona fide*. The guarantee is not to be paid if after investigation the land bonus and project are not found as represented.

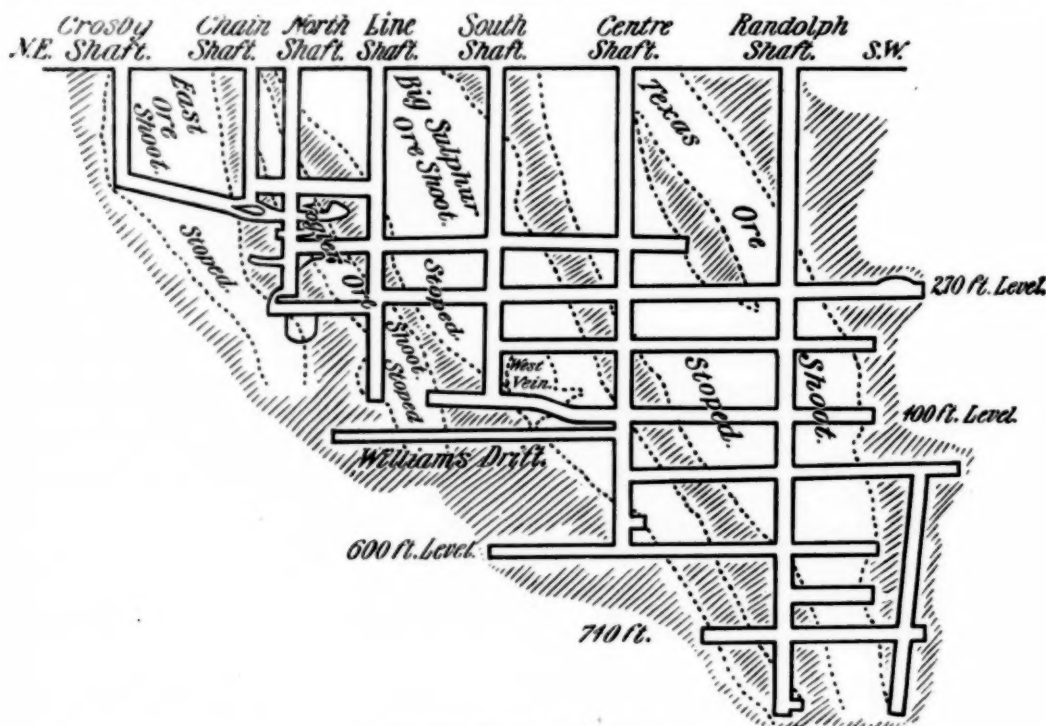
C. W. BOOTH,

Secretary Aransas Pass Harbor Co.

#### Deep Water at Sabine Pass.

The chances for deep water at Sabine Pass, Texas, are more promising than ever before. The work of dredging through the west end of the bar between the jetties has just been finished by the contractors, Charles Clarke & Co. The result of their work gives a depth of seventeen feet over the bar at mean low tide and eighteen feet at high tide. They will now commence to dredge through the east end of the bar. So far the work done has been altogether satisfactory, and the contractors, backed by the citizens, have determined to celebrate the partial completion of the work on the 24th inst. Visitors will have a chance to examine the work and see that Sabine Pass has the depth of water claimed by the contractors.

A MEETING of the representative business men of Meridian, Miss., was held at the Cotton Exchange in that city on the 10th inst. to make arrangements for receiving a large number of homeseekers and excursionists expected by the Mobile & Ohio Railroad. Mr. E. E. Posey, the efficient passenger agent of the road, has taken quite an interest in Meridian's interests, and his large party will reach that city on the 29th inst., when they will meet with a royal welcome.



GOLD HILL MINE—RANDOLPH VEIN.

A longitudinal vertical (in part) section. Scale—one inch = 200 feet. Prepared from actual survey, 1886.

and refined. The Hunt & Douglas process was found to be more efficient than smelting and was largely used. The residues from the tanks, now mostly peroxidized, were sent to the battery for amalgamation. The greatest depth reached was 400 feet. The assays run from \$13.39 to \$94.12 and from a trace to 30 per cent. of copper.

The Silver Valley mine is twelve miles southeast from Lexington. The vein is from five to twelve feet wide. The ore is galenite with blende, the latter sometimes predominating. This large per cent. of zinc has hitherto been the only difficulty in the way of an extensive employment of the resources of this mine, and the variety of experiments, both mechanical and metallurgical, which have been directed to the problem of treatment have at best only partly ameliorated the status, as is shown in the following analyses of the contents:

	Poor contents.	Rich contents.
Gold, per ton.....	\$4 13	\$4 13
Silver, per ton.....	9 58	38 06
	\$13 71	\$42 19
Lead, per cent.....	11.18	47.62
Zinc, per cent.....	27.70	12.68

After a great variety of futile efforts to treat this ore the work was abandoned. This mine has been worked to the depth of 725 feet. The latest exploitation of this mine was in the shallow parts, where a considerable body of "carbonates" was uncovered, which proved of fair grade as to silver contents. The difficulty of treating this ore, as in the case of the Silver Valley ores, is so great as to preclude it from general metallurgical purposes in the present condition of the metallurgical art.

On the Ward property, two miles east of Silver Valley, are four nearly parallel veins, and a large amount of surface suitable for hydraulic treatment.

The Welborn, two miles west of Silver Hill, carries ores greatly resembling those from the latter mine. The Symons mine, near by, has good brown ore.

The Davidson (or Emmons) copper mine is situated two miles southeast of Silver Valley. It was extensively worked for copper down to a comparatively late date, and was exploited to a depth of 416 feet on the incline. The vein is six feet wide.

The Cid is one mile and a-quarter north-east of the Emmons and has ores quite similar, but apparently may carry the precious metals to a somewhat higher per cent.

Discovery, the Reimer and the Bullion.

A third belt is in the southeastern part of the county, where there are more than a hundred mineral localities, and as many more in the adjacent parts of Stanly and Cabarrus. The mineral veins of this section are of fair width and all carry sulphurets of fair grade.

#### Importing Anthracite Coal.

[Engineering and Mining Journal.]

The proposed importation of Welsh anthracite, which was announced in these columns last week, has created quite a flutter among the coal men, some of whom pretend that Welsh coal cannot be mined and put on board vessels at less than \$2.25 a ton and cannot be sold here at less than \$5.00, which, if it were true, or believed to be true, would render their anxiety quite unnecessary. Others declare that "there is nothing in it," but nevertheless they all show much uneasiness over the plan. The facts are that the scheme has been suggested several times, and when the anthracite combination last year advanced prices exorbitantly and sought to crowd out the middlemen, this foreign supply was again investigated, and serious efforts were made to constitute it a factor in the market.



## RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on page 225.]

## An Alabama Railroad Project.

Rumors that the Montgomery, Tuscaloosa & Memphis might soon be controlled by a new company have been verified by a meeting held at Montgomery, Ala., recently, when it was announced that the Tuscaloosa & Northern and Montgomery, Tuscaloosa & Memphis had been absorbed by the Montgomery, Tuscaloosa & St. Louis.

At the organization the following directors were elected: Chester C. Monroe, of New York; E. B. Joseph, W. F. Joseph, A. S. Woolfolk and George B. Shellhorn, of Montgomery; W. T. Northington, of Prattville; George A. Searcy, Frank S. Moody and W. C. Jemison, of Tuscaloosa. The officers elected were: Chester C. Monroe, president; E. B. Joseph, first vice-president; W. C. Jemison, second vice-president; George B. Shellhorn, secretary and treasurer; Albert S. Woolfolk, assistant secretary and treasurer.

The Tuscaloosa Northern has been built for three miles out from Tuscaloosa. Three miles more of the line have been graded. The line was projected several years ago by the Tuscaloosa Land & Improvement Co. Its route was surveyed through the coal regions of north Alabama, with a terminus at Florence. A majority of the stock was finally bought in by the Montgomery, Tuscaloosa & Memphis, out of which sale grew this consolidation. The new company intends in course of time to complete the line between Montgomery and Tuscaloosa, then build to Columbus. The Montgomery, Tuscaloosa & Memphis has been graded much of the way between Montgomery and Tuscaloosa, and some track has been laid. It is expected to secure a large coal-freight business from the Warrior river region, which it penetrates. At Tuscaloosa it would connect with the Alabama Great Southern and at Columbus with the Georgia Pacific and Mobile & Ohio.

## Reorganizing Baltimore &amp; Lehigh.

A committee of first mortgage bondholders of the Baltimore & Lehigh (formerly Maryland Central) has been appointed to protect the interests of the bondholders by forcing a foreclosure sale of the road or otherwise, as may be deemed best. It is learned that already the committee which has taken preliminary steps towards foreclosing has received the assent of holders of over \$800,000 worth of the bonds, leaving less than \$50,000 worth to be heard from. This practically insures the sale of the road.

A report has been current that as soon as matters can be adjusted the reorganizers will widen the road to standard gage, as originally intended. In investigating the report the MANUFACTURERS' RECORD learns that good reasons exist for this belief. One of the committee of bondholders does not deny that such a step is contemplated. The Baltimore & Lehigh extends from Baltimore to York, Pa., by way of Belair, Md. It is seventy-nine miles long, with a branch from Delta to Peachbottom, Pa., of five miles. The Baltimore Forwarding & Railroad Co. was organized to operate and convert the Baltimore & Lehigh into a standard-gage road in January, 1893. A receiver was appointed for this company, however, which resulted in the road passing into the hands of two receivers. As we have stated in a previous article, the reorganization and sale would relieve the road of a large portion of its debt and place the new company in a better position to reconstruct it and make it a feeder to the Baltimore & Ohio, since the Baltimore & Lehigh has terminal

franchises which include the privilege of entering the Belt Line tunnel now being built in Baltimore. This would give the Baltimore & Lehigh terminals at tidewater and a passenger station in the heart of the city.

## No More Trouble for the L. &amp; N.

The Louisville & Nashville is again being operated on all its divisions, and the damage from the recent storm has been completely repaired. This disaster, coming as it did when the business troubles were decreasing the earnings of every railway in the country, was used to spread all sorts of reports, with the idea of depreciating L. & N. stock. Any amount of imagination has been used in making up estimates of the damage, some reports placing it in the millions. As a matter of fact, the damage will aggregate between \$75,000 and \$100,000. This is the statement of Superintendent Marshall, of the Louisiana division, who had personal charge of the repair work. The bridges washed away were really a series of wooden piling containing very little iron work, while much of the track was shifted out of position and simply needed replacing. The work of repair has been tedious, on account of the general overhauling which a large section of the division was given in order to make it perfectly safe. But little extra labor was hired, as the regular repair, section and bridge gangs, in all over 1000 men, were summoned to the place as soon as the storm was over, and have been there since. Although traffic was interrupted nearly four weeks, engineers regard the damage as being repaired in a remarkably short time. The work has progressed night and day under the direction of Superintendent Marshall and Chief Engineer Montfort, who have often remained in water waist deep for hours in going from one point to another. It has been one of the most extensive pieces of railroad repair work ever done in this country.

The partial strike of Louisville & Nashville employes, which has also been used to depress the stock, is at an end. All of the strikers who have not returned to work have been replaced by new hands.

## Important Express Deal.

Wells, Fargo & Co. have just made a contract by which they will add to their express territory all the railway lines in the Southern Pacific system. The contract is for twenty years, and the mileage is 7,891, embracing the following roads: Houston & Texas Central, Central Texas & Northwestern, Fort Worth & New Orleans, Austin & Northwestern, San Antonio & Aransas Pass, West Texas & Pacific, New York, Texas & Mexican, Louisiana Western extension, Texas & New Orleans, Galveston, Harrisburg & San Antonio, Morgans, Louisiana & Texas, Louisiana Western, Southern Pacific, Coast Railway, Southern Pacific of New Mexico, Southern Pacific of Arizona, Southern Pacific of California, California Pacific, Northern California Railway, Northern Railway, Portland & Yamhill, Oregonian, Oregon & California and Central Pacific.

## Mexican Railways.

A dispatch from Durango, Mexico, announces that work is soon to begin on the extension of the Mexican International to Mazatlan, on the Pacific coast. The survey for this proposed line was completed some time ago and has been approved by the government, but owing to the general financial depression in the United States and Mexico the construction work has been delayed, but all arrangements have now been completed for the early consummation of the project, it is stated. Work on the Sierra Mojave branch of the Mexican International is progressing very slowly. The International is the road

owned by the syndicate of which C. P. Huntington is the head, and connects with the Southern Pacific.

## May Be Reorganized.

Judge Morris, at Baltimore, has granted an order directing the foreclosure sale of the Annapolis & Baltimore Short Line. This road was opened for operation in 1887 and was intended for a direct route between Baltimore & Annapolis. It is twenty-eight miles long. It is paralleled by the Annapolis, Washington & Baltimore, which has obtained most of the business in that locality. It is understood that the bondholders, of which Joseph S. Ricker, of Portland, Me., is one, will reorganize and operate the Short Line.

## Annual Meetings and Elections.

At the annual meeting of the Illinois Central, held in Chicago, John Jacob Astor was added to the directory and the following officers elected: President, Stuyvesant Fish; vice-president, J. C. Welling; second vice-president, J. T. Harahan. T. H. Gibson was elected treasurer in place of Henry Dewolf, deceased. Mr. Gibson is from New York, and has acted as assistant treasurer of the company.

At the annual meeting of the Nashville & Decatur, which is leased to the Louisville & Nashville, the following members of the directory were elected: D. B. Cliffe, William M. Duncan, John Orr, Samuel Seay, Byrd Douglass, William W. Berry, A. W. Harris, John Ramage, Joseph H. Thompson, H. A. Tyler, John Overton, Samuel M. Murphy, Joseph E. Washington, William E. Winstead and W. B. Pryor.

At the annual meeting of the Western Maryland Company, held in Baltimore, the following were elected directors: B. A. Betts and William Kealhofer, Washington county; Edward Worthington, Baltimore county, and Robert Biggs and John M. Littig, of Baltimore.

The Cincinnati, New Orleans & Texas Pacific re-elected W. P. Anderson, Calvin S. Brice, S. M. Felton, W. A. Goodman, C. C. Harvey, Alex. McDonald, Charles M. McGhee, Samuel Thomas and L. C. Weir as members of the directory.

Stockholders of the Interoceanic Railroad (projected) held a meeting at Little Rock, Ark., and elected S. L. Shellenberger, president; L. G. Eddy, secretary; T. Fuper, John Degen and J. H. McCarthy as directors.

## Official Railway Changes.

A. A. Allen appointed general manager of the Missouri, Kansas & Texas system in Texas, with headquarters at Denison, Texas.

J. W. Petheram appointed chief engineer of the Missouri, Kansas & Texas in Texas.

Charles Southerland appointed auditor of the West Virginia Central, with headquarters at Cumberland, Md.

John C. George, of Baltimore, has been appointed receiver of the Raleigh Street Railway Co., of Raleigh, N. C.

R. B. Campbell has been appointed general manager of the Baltimore & Ohio in place of J. T. Odell, who will act as assistant to Prest. Charles F. Mayer, with headquarters in Chicago. Mr. Campbell, who has been general superintendent of the Baltimore & Ohio lines west of the Ohio river, was born on May 18, 1850, at Bloomington, Ind., and entered the employ of the Louisville, New Albany & Chicago Railroad as a telegraph operator at the age of fifteen. After working in a similar capacity on several other Western roads he secured a position on the Union Pacific, and up to 1875 was successively telegraph operator, agent, assistant train dispatcher and chief train dispatcher. From 1875 to 1882 he was train dispatcher and assistant division superintendent on the Central Pacific, severing his connection with that road to

accept a position as division superintendent on the Chicago, Milwaukee & St. Paul.

## Railroad Notes.

AUGUSTUS W. HENDRICKS, who was recently appointed treasurer of the Northern Central to succeed the late John S. Leib, has been in the employ of the company for twenty-two years, having been cashier for eleven years. Thomas Leib, brother of the late treasurer, succeeds Mr. Hendricks as cashier.

A RECENT circular issued by President Duval announces that Vice-President Tucker will have general control of the South Bound division of the Florida Central & Peninsular, and all heads of departments will report to him.

A RECENT number of the *Railroad Gazette* contains an interesting article on the Baltimore & Ohio Railroad exhibit at the Columbian Exposition, with thirty-five illustrations of different steam motors shown in the collection.

THE Brooks Locomotive Works, of Dunkirk, N. Y., has recently built fifteen locomotives for the Illinois Central. One of these is to burn anthracite coal instead of soft coal.

ACCORDING to a Memphis exchange some of the Tennessee and Mississippi farmers find it more profitable to haul their cotton by wagons to Memphis than to ship it by rail at the present rates they pay to the city. The Farmers' Alliance is taking this step, and the paper states that two trains of Alliance wagons arrived in Memphis recently, bringing about 100 bales of cotton and taking back purchases. The first to arrive was the Sunnyside Alliance caravan from Tipton county, near Covington, and the second a party from the neighborhood of Coldwater, Miss.

IT is announced that the Illinois Central has purchased a tract of land near its new passenger station in New Orleans for \$37,000. It is supposed that the property will be used either for car sheds or for a hotel site.

RECEIVER AVERILL, of the Port Royal & Augusta, is improving the line in many respects. He has repaired a number of the trestles and bridges and strengthened and ballasted the roadbed in many places. It is expected to rebuild several of the stations. The State railroad commission recently inspected the line and commented on its improved condition.

THE new Railway Y. M. C. A. building at Clifton Forge, Va., has been completed and thrown open for use. It is one of the handsomest of its kind in the country, and was built by the Chesapeake & Ohio and donated to Clifton Forge.

A CINCINNATI dispatch announces that the Baltimore & Ohio Southwestern and Ohio & Mississippi will be consolidated formally on November 1. E. R. Bacon, of New York, who is the present head of the Baltimore & Ohio Southwestern, will be president of the consolidated line. Both roads are controlled by the Baltimore & Ohio.

THROUGH the efforts of President Hurt, of the Atlanta Consolidated Street Railway Co., the next convention of the American Street Railway Association will be held in that city. Mr. Hurt is one of the vice-presidents of the association. The next convention will be held in October, 1894.

THE courts have fixed the date of sale of the South Carolina Railway at foreclosure for December 12.

THE Louisville & Nashville is receiving the last instalment of a shipment of 1500 new air-brake cars, which are destined to be used in handling the fruit crop from Florida and Louisiana. The cars are of the best make and well adapted to the use for which they are designed.



## PHOSPHATES.

### No Reduction in Royalty.

The South Carolina river phosphate miners have been given a very decided answer regarding the proposed reduction in royalty, Governor Tillman having informed them that no reduction will be made by the commission, nor will any recommendation to that effect be presented to the legislature. This settles the matter definitely and finally, and the miners have nothing to hope for from the State in the way of relief.

The correspondence between the mining companies and Governor Tillman is given below in full:

#### THE MINERS' SIDE OF THE QUESTION.

BEAUFORT, S. C., October 16, 1893.  
To his Excellency, the Hon. B. R. Tillman,  
Governor of South Carolina, Chairman of  
the Board of Phosphate Commissioners:

Dear Sir—We have been carefully considering the resolutions passed by the board at their last meeting in Beaufort, as we see them published in the newspapers, and which we presume to be correctly published, although we have received no official communication from the board embodying or concerning the same.

We appreciate thoroughly the endeavor of the board on behalf of the State to extend the mining companies all the reasonable assistance and consideration that the State can possibly offer to aid them in extricating themselves from the deplorable condition in which they were placed by the last disastrous cyclone. We are exceedingly anxious to meet the terms and conditions given and required by the board in the resolutions, but beg respectfully to call the attention of the board to the following matters, wherein it seems to us that the method proposed to us by the board in the resolutions will probably meet with difficulty in its execution:

First. A fixed amount of \$75,000 by the resolutions is to be paid in 1894 by the several mining companies in proportions to the rock mined by them respectively during the year 1893, but this would work out in the following manner: The proportions for the year 1894 will vary seriously from those of 1893, because of the fact that some of the mining companies will be very much later in getting to work, and work for a very much smaller period of time than others. For instance, the Carolina Mining Co. and the Coosaw Company would hardly be able to get to work in any event effectively before June, 1894, if then. During that period the other two companies have been working probably to their full capacity, whereas the proportions of the \$75,000 to be assessed on the respective companies will be assessed by the proportions raised in the preceding year, 1893, when all were working constantly, and therefore lie much more heavily on the companies getting to work last, however energetically and sincerely they may strive to commence operations.

Second. Even if the companies were to begin at once with all energy to restore their plants, they cannot all get to work, as already stated, with full force before June, 1894, if then. It is not at all likely that they would be able to produce and ship during the balance of the year over 130,000 tons, if that much. If \$75,000 is to be paid, assuming this production, this would leave about 55,000 tons free of royalty and would be the only reduction offered for 1894. The stock on hand at the time of this cyclone, according to the statement of the inspector, was 31,164 tons, on which a reduction of fifty cents is offered, making \$15,582. This would make the total possible reduction under the resolutions only \$70,582. There is no likelihood of any quantity of additional rock being mined and shipped in 1893. To restore the dam-

aged plant will cost the companies over \$300,000. And at the expiration of 1894 the royalty returns to \$1.05 per ton, and no further reduction is offered.

Had the cyclone not occurred it was only a question of time when the companies would have had to stop, unless the State had so reduced the royalty as to enable them to keep on. Last year they tried by forcing sales and disposing of a larger quantity than usual to spread their expenses over such larger quantity and thus save themselves. And the reports show that in this effort they sold much more than they produced, disposing of rock which they had been holding over from previous years. But the experiment did not have the effect hoped for. To encourage and enable the companies to raise and invest the new money necessary and to enter again upon this industry on a basis offering some prospects of moderate gain, and to meet the fierce and increasing competition from Florida, where the State has already reduced its royalty to fifty cents (and it is currently reported will still further reduce it) to enable its miners to live under competition, we would respectfully ask that the board, either themselves or, if they deem it proper, subject to the ratification of the legislature, enter into some agreement of a more permanent character, whereby the royalty for a fixed period, say for not less than five years to come, would be reduced to fifty cents per ton.

We beg respectfully to say to the board that the companies stand ready to begin actively the work of restoring their plant as soon as they can be placed in a position to resume work with any fair prospect of success.

We feel, in conclusion, that we should call your attention to the extreme importance of prompt action in this matter if operations are to be resumed. The industry has suffered greatly in its business across the water by the delay which has already occurred. Every day's additional delay is an injury both to the State and to the companies, in that it is a direct injury to the business of the companies with their customers, from which comes revenues not only for them, but for the State.

Asking the favor of an early reply, we are,  
Yours very respectfully,

F. BROTHERHOOD,  
President Carolina Mining Co.  
JACOB PAULSEN,  
President Beaufort Phosphate Co.  
M. E. LOPEZ,  
Superintendent the Coosaw Company.  
PAUL S. FELDER,  
President Farmers' Mining Co.

#### GOVERNOR TILLMAN'S REPLY.

COLUMBIA, October 20.  
Messrs. F. Brotherhood, Jacob Paulsen, M. E. Lopez and Paul S. Felder, Beaufort, S. C.:

Gentlemen—Your letter of the 16th of October, addressed to me as chairman, of the board of phosphate commissioners, has been received and the same submitted to the ex-officio members of the board resident here, who with myself constitute a quorum.

We have given full and careful consideration to its contents, and regret that the river mining companies as represented by yourself seem disposed to drive a hard bargain with the State, and demand concessions which we cannot give.

The amount of rock on hand at the time when the industry was paralyzed by the storm is estimated at from 30,000 to 40,000 tons. The reduction of the royalty on this to fifty cents, as proposed in the resolution passed at Beaufort September 16, will cause a loss to the State of from \$15,000 to \$20,000. It is guesswork, of course, as to what amount of rock can be mined next year, and it is just as easy to figure it at 200,000 tons as at 130,000, and the amount which the State will lose under the conditions imposed in that resolution and by the sale of

the rock on hand between now and January can just as easily and reasonably be put at \$150,000 as \$70,000, the amount under your calculation.

You complain of delay and request prompt action on our part in the face of the fact that more than a month has elapsed since our meeting in Beaufort, the proceedings of which were published, and you gave no sign as to your acceptance or rejection of our proposition till now.

I may as well say once for all that the board considers that it has made all the concessions possible or proper, and it is unreasonable in the miners to ask more.

We will not enter into any contract reducing the royalty to fifty cents per ton for five years, nor will we advise the legislature to make any such agreement.

The royalty in Florida has nothing to do with the royalty here, and the river rock there cuts a very small figure in the market.

We were under the impression, from what we saw in Beaufort in September, that some of the dredges could be put to work in thirty days, and that by Christmas at least half of them would be mining. I do not know what has been done towards restoring the industry, or whether it is intended to resume mining at all, but the board is not responsible for any delay, and any attempt to drive the State into yielding more than it already has will inevitably fail. We had just as well leave the rock in the river as give it away.

The conditions offered by the board were as liberal and just as we felt warranted in making, and unless they are accepted at once and written notice given, royalty on the rock on hand August 27 will be collected at the rate of \$1.05 a ton.

If you choose to go to the legislature and make your plea there we have no objection, but the board will not make any change in the proposition already submitted to you. Very respectfully,

B. R. TILLMAN,  
Governor and Chairman of the Board.

### The Situation in Florida Phosphates.

[From our own Correspondent.]

FERNANDINA, FLA., October 24.  
The closing quarter of the year witnesses in Florida a greater genuine activity in the phosphate industry than has existed at any time since the first discovery of this great resource of the State. There was a time when there was more bustle and movement to and fro which indicated great activity, but the operations then being carried on were largely experimental in their nature, and were wanting in that essential element of solidity which marks the work being done throughout the State at the moment. Plants which through the dullness of summer have been in a state of idleness, sometimes on account of the most stringent money market in the memory of the active generation, but oftener for the better reason of putting in the latest and most improved machinery, have started up afresh, better than ever prepared to do successful business. Conditions have been exceptionally favorable in some directions to counterbalance the natural depression which is the legitimate outcome of the mixed state of the monetary system of the country. Some of these conditions contributing to the effective activity of the hour are: The advance made in handling and preparing the product for market, cheapening the old methods and widening the margin of profit to the miner; the increased demand for Florida rock in the European market, and the impetus given the industry by the enforced cessation of operations of the river miners of South Carolina. Preparations have been making for the attainment of the first-named condition for months throughout the mining district of all Florida.

The resumption of work accordingly finds the majority of the mines thoroughly equipped for the most effective work yet

done, and able, by the new methods adopted, to reduce the cost of every ton. New washers have taken the place of old and ill-adapted ones, new methods in driers, new devices in conveying to storage bins, reducing the manual handling of the rock, and improved modes of removing the overburden from the pits and economically disposing of it; in fact, in every direction the lessening of first cost has been sought and found in a very gratifying measure. Then, too, appreciating the advantages gained in freights by taking high-grade rock, European buyers have been making contracts throughout the season for deliveries which will keep many mines busy for some time to come. And now the recent storm, which sent the shipping high into the marshes and all machinery to the bottom along the South Carolina coast, has opened up an opportunity whose benefit will not be evanescent. The wrangle the river men have gotten into with Governor Tillman on account of the royalty charged by the State delays indefinitely the resumption of work by these people and a consequent reduction of the world's supply by so much as would have been the reasonable expectation from this source. It seems a reluctant and temporary concession by the governor has met with no favor with the mining companies, and a reduction in the royalty for a term of years is demanded and has been refused, the miners holding the concession requested to be absolutely necessary for their very existence and the governor contending that the State cannot afford to grant the demands. In the meantime the world moves on and trade seeks a new channel and finds it in Florida's direction, and when the victory is won by either the governor or the river miners it may be found to have been dearly bought and the vantage gained by the Peninsular State permanent and unassailable.

The report of the commissioner of labor, Hon. Carroll D. Wright, has been received with much satisfaction throughout the State as furnishing much valuable, exhaustive and interesting information in regard to Florida and her phosphates. The map which accompanies the work is very elaborate and valuable and as nearly correct as the nature of the work would admit. The review of industry reaches to every department of development, and the collaboration has been carefully made. While eminently correct in many things, I regret that the commissioner does not give the credit of the recent discovery of the phosphates of the State to the proper party, Mr. John C. Jones, of Orlando, Fla. From an economic and practical standpoint he is the discover of the beds of the Peace river, his announcement of the fact antedating the discovery by Mr. Albertus Vogt more than a year, and the discovery of the material in the river being considerably prior to that time. This, of course, was subsequent to Lieutenant Le Baron's first investigations, but his researches, it will be remembered, resulted in nothing of a practical nature. I do not write this in any controversial spirit, but in justice to the man who first drew to the State the aid of capital to develop a grand resource which has proven and will continue to prove to the world for unnumbered years a benefaction of the highest order.

The Pharr Phosphate Co. at Bartow has completely renovated its plant and thrown out all the old machinery purchased about a year ago from the original owners, and starts out on the new season with facilities of the latest and best patterns. The plant has an easy capacity of 100 tons per day. It is probable that Walton, Whann & Co., of Wilmington, Del., whose members own and control the Pharr Company, will take the entire output of the mine.

Last week at the mine of the French Company at Anthony a wall of earth caved in, crushing one of the company's Italian



laborers to death the first day of his work at the mine. The company has 106 other Italians at work.

The International Phosphate Co., near Dunnellon, after reorganizing, has gone to active mining, and with improved machinery is making a success at its plant.

General Bailey, who has been identified with phosphate mining from the first, has just purchased the Childs place, in upper Alachua county, and will begin active operations there.

The active shipments at the ports have caused the railroads to put on extra trains and to increase the length of the trains in regular service. Lakeland reports the passage through of very heavy shipments. Punta Gorda received last week a train of fifty-three cars from the Peace river valley, and Fernandina reports a train made up of sixty-three loaded cars, each car containing about twenty tons of hard-rock phosphate.

The shipments from Tampa for September were 10,508 tons. Of this tonnage only 1098 tons were shipped coastwise, finding market at Philadelphia, being about 10 per cent. of the output at this port for the month.

Complaint comes from Jacksonville that the port is neglected in the shipment of phosphate from the State. This is undoubtedly true. The cause, however, is that, with the exception of the low-grade beds of the Black Creek district, no territory bearing phosphate is tributary to Jacksonville. The Florida Central & Peninsular Railroad runs through the phosphate region and terminates at the deep-water outlet of Fernandina, while another part of the field is served by the Plant system, with deep-water terminal at Savannah. No direct rail connection with the phosphate field, though several have been suggested, has yet materialized for Jacksonville, and until then the city can expect but little tonnage.

The Pebble Phosphate Co., of Fort Myers, has surrendered to the hard times, and is in financial trouble. The product here is said to be too freely mixed with fragmental shell.

The French Company is constantly adding to its equipment. Last week it received from the Ocala Foundry and Machine Works 1700 pounds of castings.

A very important find is reported as having been made at the mine of the Terraceia Company, eight miles southwest of Bartow, that of a sub-stratum of fine pebble phosphate below the beds now being worked, some fifteen to eighteen feet in thickness. If subsequent investigation verifies this find, the company will have great cause for rejoicing, and will own the most valuable property so far discovered. The company can now mine about 150 tons a day. A series of investigations are now being made on their island property, Terraceia Island, on the gulf coast, with a view of putting in an additional plant at that point.

To sum up the situation, matters are decidedly encouraging, and the belief prevails that the darkest day of phosphate mining in Florida has passed. The era of speculation is over, and the business has assumed a solid aspect and takes its place among the established industries of the land.

J. H. JONES.

#### Phosphate Markets.

OFFICE MANUFACTURERS' RECORD,  
BALTIMORE, October 26.

The local phosphate market shows very little activity at the moment, and the volume of transactions for the week have been light. Local manufacturers of fertilizers are not purchasing to any extent, and are only buying to satisfy present wants. The reports from points of production are of an encouraging character, and prices are remarkably steady under an active demand from both foreign and domestic buyers.

There are no arrivals of phosphate reported this week. In charters we note schooners E. L. Davenport, Ashpoo, S. C., to Baltimore, and Susan B. Ray, Ashley river to same. O. L. Tareau & Co. report charters as follows: Bark Julia and schooner Charles E. McGregor, Tampa to Baltimore on private terms. The tone of the market is firm as to values, and prices for South Carolina rock are unchanged at \$5.50 for Charleston, \$5.00 for Ashley river and \$5.25 for Ashpoo. Florida rock is very steady and values firm at \$5.00 for 60 per cent. river pebble, \$5.50 for 65 per cent. and \$6.00 for 70 per cent., all f. o. b. Charlotte Harbor or Tampa. Rates of freight continue steady, with a moderate offering of handy-sized tonnage; Charleston to Baltimore \$1.80, and Tampa to Baltimore \$1.90.

#### FERTILIZER INGREDIENTS.

The tone of the market is quieter than usual, and local buyers are holding off, the sudden advance having had a tendency to restrict the demand for the moment. There is a good demand from Southern buyers, and values for ammoniating material continue firm. The offerings of blood, fish and tankage continue light, and in the West stocks are well sold up for the current year and early months of 1894. Tankage, 9 and 20, is still quoted \$23.50 f. o. b. and 7 and 30 at \$18.50, while blood is held at \$2.50, all f. o. b. Kansas City. In the local market we note sales this week of 7 and 30 tankage basis \$24.00, and 9 and 20 basis of \$2.50, both Baltimore. There is a sharp advance in nitrate of soda, and the market is firm, with a good demand, at \$1.90 to \$2.00 for round lots. The following table represents the prices for material at this date:

Sulphate of ammonia.....	\$ 3.30@	\$ 3.50
Nitrate of soda.....	1.87 1/2@	2.00
Hoof meal.....	2.50@	2.60
Blood.....	2.75@	3.00
Azotine (beef).....	2.75@	2.80
Azotine (pork).....	2.75@	2.80
Tankage (concentrated).....	2.40@	2.50
Tankage (9 and 20).....	\$2.75 and 10 cts.	
Tankage (7 and 30).....	24.00@	25.00
Fish (dry).....	26.00@	
Fish (acid).....	16.00@	

CHARLESTON, S. C., October 23.

The phosphate market has been very much unsettled during the week, and at points of production throughout the State river rock miners are doing very little. The question of royalty has engaged their attention this week, and their proposition to the governor of the State to reduce the royalty to fifty cents a ton for five years has met with a decided refusal on the part of the chief executive. The governor's answer to the miners gives them the choice of accepting the terms offered by the board of commissioners at Beaufort or paying the royalty of \$1.05 per ton for the rock on hand on August 27 last. The movement in land rock is more active, and the shipments are quite liberal. Prices continue very steady, under an active demand from domestic ports. The shipments of phosphate rock during the week were as follows: Schooners Anna E. Ketchum, with 535 tons, and Gertrude Abbott, with 830 tons, both for Philadelphia; the brig H. B. Hussy cleared for Weymouth, Mass., with eighty-five tons. The total shipments since September 1, 1893, amount to 12,915 tons crude rock and 300 tons ground, against 19,666 tons crude and 876 tons ground during the same period last year. The following schooners are loading phosphate, several of which are about ready to sail: Katie J. Irelan, Ashley river; Emma C. Knowles, Ashley river; B. F. Lee, Ashley river—all for Baltimore; William H. Shubert, for Elizabethport, N. J.; Annie C. Grace, ready to sail for Wilmington, N. J., and the Oscar C. Schmidt, loading in Ashley river for Wilmington, Del. Prices during the week have been firm, and several large sales are reported to domestic fertilizer manufacturers at outside figures. The market closes very steady, with a good inquiry, at \$5.00 to \$5.50 f. o. b. Charles-

ton and \$4.50 to \$5.00 Ashley river. Ground rock is quoted \$7.50 to \$8.00 f. o. b. in bags. Freight rates are unchanged, \$1.80 being the figure for rock to Baltimore.

#### Phosphate and Fertilizer Notes.

THE British steamship Miramar arrived at Savannah on the 21st inst. and will take on a large shipment of phosphate. Messrs. J. M. Lang & Co. are the shippers.

THE Greenville Fertilizer Co., of Greenville, S. C., commenced operations on the 20th inst. The company is receiving blood, tankage and other material, and the outlook is good for a prosperous season. The factory has already several thousand tons of acid phosphates on hand.

THE following phosphate vessels cleared from Fernandina during the week ending the 18th inst.: Steamship Cyanus with 2130 tons of phosphate rock for London, Eng., and the steamship Norlands with 2200 tons for Rotterdam. The shipments of phosphate from that port to the 18th inst. amount to 13,434 tons.

THE Ocala & Blue River Phosphate Co., at Luraville, Fla., has placed an order with McLanahan & Stone, of Hollidaysburg, Pa., for three of their patent steel double log washers and three double-shell screens and conveyors. When completed this will be one of the largest and most complete plants in Florida.

THE steamships Egyptian Prince and Tonsberg have been chartered for cargoes of phosphate during the present month. The Egyptian Prince has been taken by the Dunnellon Phosphate Co. to load 2000 tons. The Tonsberg is chartered by the Anglo-Continental Guano Works to load 2100 tons. If both steamers load in October, together with the Snilesworth, the total shipments for the month will be over 20,000 tons.

#### Engineering Association of the South.

At the regular meeting of the association in Nashville October 12, Vice-President Wm. T. Magruder in the chair, Prof. W. W. Carson, of Knoxville, presented a paper entitled, "A Plea for the More Rational Presentation of the Calculus." The beginner in the calculus finds the continuity of mathematical science broken, and instead of meeting the characteristic clearness of proof, he is surrounded with perplexity and darkness. The author investigates the causes of this state of affairs and suggests the remedy. The demonstrations of the calculus of today rest on limits or on infinitesimals, or on both. The former proves the formulas without giving any foundation or explanation of the nature of the calculus; the latter explains, but does not prove, yet, as it leads directly to true results, it has been accepted. Proofs by limits, when sifted down, rest on slippery definitions and ambiguous language; infinitesimals are invested with the property of changing their magnitude from the considerable to the inconsiderable as occasion demands. The author repudiates the doctrine of infinite quantities, both infinitely small and infinitely great; such classification is artificial and useless. The equations of the infinitesimal calculus are false to him who understands the dx's and dy's to stand for infinitesimal increments, though true to him who understands them to stand for something else, and it is by performing the operations of the latter's conception that true results are obtained. Instead, the author would introduce hypothetical quantities. A real occurrence takes place by a continuous change of conditions, and in a real magnitude the conditions are different for different parts; the hypothetical quantity is what we suppose would exist under a reduced number of conditions actually obtaining in the real quantity, hence is simpler than the real. The calculus is defined as "that branch of mathematics which connects real with

hypothetical quantities." The problem of the differential calculus is—given the real quantity, to find the hypothetical; that of the integral calculus—given the hypothetical, to find the real. The investigator desires to find a certain real magnitude, which, by reason of the complexity of the conditions, is beyond the reach of his mathematics; he turns to the hypothetical and considers a magnitude similar in nature to the real, and that would exist if the conditions were less complex; if this is within reach of his mathematics he passes, by the rules of integration, to the real, otherwise the process of the hypothetical is repeated until the conditions are sufficiently simple, then by a sufficient number of integrations the real is reached. With this conception of hypothetical quantities, we logically derive the equations gotten by the limit calculus, and what its "derivations" really are is shown; multiplying these equations through by dx gives the equations used in the infinitesimal calculus.

The association will next convene at the annual meeting, Nashville, November 9.

WALTER G. KIRKPATRICK, Secretary.  
Address, 35 Woodland Park, Chicago.

#### Florida Oranges Sell Well in London.

Messrs. L. Connolly & Co., fruit merchants, of London, England, in their circular of the 11th inst. report the sale of oranges which arrived per steamship Campania, of the Cunard Line, as very satisfactory. The circular says: "We confirm our respects of the 7th inst., and now have the pleasure to advise you that we today sold 216 boxes of Florida oranges by steamer Campania as follows: 150 to 176 size, 12s. 9d. to 16s. 6d. per box; 200 to 220 size, 11s. to 15s. 9d. per box, according to condition and color. The parcel landed in very good order and met with keen demand, as is shown by the prices realized, the gross average of the shipment being 13s. 9d. per box. The Germanic, due on the 13th, carried 1000 boxes."

#### Louisiana Oysters All Right.

According to the New Orleans Times-Democrat, the oyster industry of Louisiana was not seriously injured by the recent tornado. There was some damage to the oyster beds due to the piling up of mud on them by the storm, but it is not as great as imagined, as it is confined to the transplanted beds and does not affect the natural oyster reefs. Even in the case of the former the losses are not over 35 per cent., and they constitute only a small fraction of the supply of oysters. Taking the districts tributary to New Orleans, the Louisiana coast and Mississippi sound, the loss is not over 10 per cent., and only on this year's crop. By next season the beds, it is believed, will be more productive than ever.

#### Inducements to Settlers.

Texas people have long been alive to the advantages of securing a desirable class of immigrants, and in many of the counties they offer special inducements. Pasturemen of Refugio county favor immigration and will sell land from \$6.00 to \$10.00 per acre, according to quantity and quality, on reasonable terms to suit purchasers. Others are building comfortable dwellings and outhouses and enclosing fields to rent on shares. Owners furnish necessary implements, horses, etc., and expect from the rents one-half the crop when made. If renter furnishes everything only one-third of the corn and one-fourth of the cotton is demanded.

THE Wheeling Steel & Iron Co.'s Belmont furnace at Wheeling, W. Va., will be put in blast again in a few weeks. The plant was closed down last July and since then has been greatly improved, its capacity being increased nearly one-half; in fact, the furnace has been practically rebuilt.



## COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

### Cottonseed Meal as a Fertilizer and Feed.

The following analyses of cottonseed meal have been made at the Connecticut agricultural experiment station during the present year.

While they were made in the interest of those who were buying the meal to use as a fertilizer, they are worth the attention also of those who are now using or who intend during the winter season to use cottonseed meal as feed for stock.

The eight analyses represent decorticated meal of fair quality made from upland cotton.

The per cent. of nitrogen found in one sample is higher than has ever been observed in any sample analyzed here, 8.08 per cent.

The per cent. of nitrogen found in another sample was very low for pure meal, but the sample does not appear to be adulterated. The other differences in nitrogen among these eight samples are such as occur constantly and are due to differences of soil and fertilizers on which the cotton was raised, and to differences in the thoroughness of the hulling.

Owing to increased foreign demand the price of cottonseed meal has advanced sharply, so that it is no more our cheapest source of available nitrogen. Thus the average cost of nitrogen in these eight samples analyzed in 1893 was seventeen and a-half cents per pound.

Last year the average cost was only about fifteen cents, nevertheless meal of prime quality is still a profitable fertilizer to use if bought at \$30.00 or even \$31.00 per ton.

Special attention is called to three samples. They contain somewhat more than half as much nitrogen and considerably less phosphoric acid and potash than the other samples, but were sold for only a dollar or two less per ton.

These are "cottonseed meal" as well as the other, but are made from the seed of Sea Island cotton ground with the hulls. They are readily distinguished by their dark color and the presence of hard, black fragments of hulls.

As fertilizers they are not worth more than \$18.00 per ton when bright decorticated meal can be bought for \$30.00.

It is quite likely that this sort of meal will be put on our market more commonly than heretofore.

In ordering meal to use as a feed or as a fertilizer purchasers should require decorticated upland cottonseed meal containing at least 6.5 per cent. of nitrogen, unless they are willing to use the other greatly inferior meal, which cannot be economically done unless it can be got for greatly reduced price.

There is no evidence that the undecorticated meal is in any way injurious to stock; indeed, some feeders prefer it to the clear decorticated meal on the ground that it is less likely to cloy cattle if fed in large quantity. But both its manurial and its feed value are much less than those of decorticated meal.

The cottonseed-oil mills at Longview, Texas, which were erected last year, are in full operation and are among the most substantial enterprises of the town. The managers are paying twenty cents per bushel for cottonseed.

### The Markets for Cottonseed Products.

NEW YORK, October 26.

The cottonseed-oil market during the fore part of the week under review has been firm, and considerable business has

been put through in prime goods at forty cents, new yellow oil having sold at forty to forty-one cents and some sales reported at forty-two cents, but very little could have been sold at the latter figure. In prime crude the sales have ranged about thirty-six cents, although some choice lots have brought higher prices. Oils nearly prime have sold at thirty-five cents. These oils would, under ordinary seasons, be called prime oil, and will undoubtedly be called prime oil before this season is over if the present quality of receipts is a sample of what may be expected from this crop. Off crude has sold from thirty-one to thirty-four cents, according to quality. Off yellow oil has been dull and nominal.

Exporters have not been able to obtain offers that would meet the views of sellers and the soap trade has been indifferent, so that very little business in this line has resulted. The stock of oil here is practically nothing, and hence buyers who require an immediate shipment are obliged to pay full rates in order to get the oil, while they are indifferent about oil to arrive and unwilling to make liberal offers.

The firmness in the fore part of the week has been followed by a much quieter feeling, and there is more indifference today among buyers than has been seen at any time during the week. This is due largely to freer offerings from Western points, which would indicate that they are not getting liberal bids from the West for their product, and are seeking an outlet in this direction. The high prices paid for seed in the West, reported as high as \$19.00 per ton, must put the mills in a very unfortunate position, unless they can obtain even higher prices than have been current for their oil. As indicated recently, there may be as much of a competition among mills to sell oil as there has been competition among them to buy seed, making a bad cut in both directions. We hope that the recent good weather will improve the quality of the seed and the oil, else we are going to see comparatively little oil that is of as good quality as last season's product, and therefore may expect a reasonably firm market upon choice grade goods. It is even possible that there may be almost a divorce between the price of prime oils and off oils before this season is much further advanced.

The only export demand has been for a limited quantity of oil for butter purposes for the United Kingdom, but that only could be filled by oil on the spot; otherwise exporters have been utterly unable to bring about business. We think, however, that the supplies of oil will be more liberal in a short time, and that when there is an opportunity for more business, trading will be more active, whatever the basis of prices may be. There has been some little demand for white oil this week, and this grade is scarce and sales have been made at forty-eight cents. Compound lard is slow again this week, both in the West as well as at this point; consequently there has been some indifference by Western buyers, and hence Texas mills have been unable to obtain their asking price, thirty-five cents f. o. b. mills for crude in bulk. The situation is a peculiar one, the mills paying prices for seed that do not permit of sales of oil even at the highest prices yet current at a profit, while the export markets are very backward in their demands, and buyers here continue to act very cautiously, pursuing a hand-to-mouth policy unless tempted by some low offers, or will only be induced to make bids at low prices. We still believe that strictly prime goods will be comparatively firm in prices, unless much more of the grade is made than now appears probable. In other grades the mills must either be determined to hold their products until they can obtain their prices, or else meet the low views of exporters.

The favorable feature in the situation is

the probable repeal of the silver bill and gradual revival of confidence, and consequent increase of demand for oil, because stocks must be reduced to a minimum figure in the hands of consumers. Europe must have pretty well exhausted its supply of old oil. We hope that when the market here obtains a more liberal supply of oils we shall see more active trading and a sufficient amount of business doing to make quotations and sales more nearly represent what can be done with oil than that at present. Prime crude is the only oil today in which much business can be done. In other oils the business is now of a very fitful nature. We expect an increased demand for butter oil, but hardly expect a good demand for off oils, unless at low prices.

HOPKINS, DWIGHT & CO.

NEW ORLEANS, October 23.

During the past week there has been a further advance in cottonseed products in New Orleans, and receivers' prices are recorded at \$15.00 per ton for cottonseed delivered in that city. Cottonseed meal is jobbing at depot at \$21.00 to \$21.25 per short ton of 2000 pounds, and for export per long ton of 2240 pounds \$22.50 to \$23.00 f. o. b. for current month. Oilcake for export is quoted \$22.50 to \$23.50 per long ton f. o. b. Crude cottonseed oil at wholesale or for shipment is quoted at thirty-two cents for strictly prime in barrels and thirty to thirty-one cents per gallon for loose. Refined cottonseed oil is quoted at thirty-seven to thirty-nine cents for prime in barrels at wholesale or for shipment; soap stock, one and one-eighth to one and one-quarter cents; cottonseed hulls, thirty cents per hundred pounds delivered; foots one and a-half to two cents; linters A, three and three-quarters to four and a-quarter cents; B, three and a-half to four cents; C, two and a-half to three cents, according to style of staples. Ashes are quoted at \$17.00 to \$18.00 per ton of 2000 pounds f. o. b. Local freight rates on cottonseed products are very steady. Cottonseed oil to Continent is quoted at six shillings, and to New York \$1.25 per barrel; Boston, \$1.75; Philadelphia, \$1.65, and Providence, Fall River and Baltimore, \$1.80, all via New York; oilcake and meal, eighteen shillings to United Kingdom and Continent; New York, fifteen cents; to ports via New York as follows: Boston, twenty-three to twenty-five cents; Philadelphia, twenty-three cents; Providence and Fall River, twenty-four to twenty-six cents, and Baltimore, twenty-five cents per barrel.

ROTTERDAM, October 9.

The director of the warehouses has published his statement for September, and, as expected, the deliveries have been large during the month, owing to the large mixture of oil during the cold month of September. While the summer has been very hot in Holland, the month of September was cold, and in consequence more oil was used than was expected some time ago. The official statistics for September follow:

	Gross weights.
	Kilos.
Stock on September 1.....	6,169,933
Arrivals in warehouse in September.....	322,310
	6,492,243
Deliveries from warehouse in September.....	2,412,322
Stock on September 30.....	4,079,921

The stock in warehouse here has decreased, therefore, 2,090,012 kilos, and the present stock is 4,079,921 kilos, or about 20,000 barrels. Although the deliveries from warehouse have been large, the deliveries to customers have been even larger than is shown by these figures, for parcels coming direct from the steamers to customers are not included in these figures.

The market remains very firm, and not much oil is offered. There is not much oil in first hands. Some time ago the importers sold largely at thirty guilders per 100 kilos, and several thousand barrels were then sold at this figure. The price

for prime oil is now thirty-five to thirty-six guilders delivered here ex warehouse. From time to time a parcel is taken out of the market at these figures.

The weather remains cold for this season. The demand for butterine of low quality remains active, so the butter-makers are using a good deal of oil. The quotation for new oil is now thirty-six guilders per 100 kilos c. i. f. here, equal to about forty-seven or forty-eight cents per gallon of seven and a-half pounds f. o. b. in one of the American Atlantic or gulf ports. At this price not much business has been done as yet, but the butter-makers will soon be obliged to buy cotton oil, and probably they will be obliged to pay the above-named price.

G. W. SANCHES.

[NOTE.—The price in guilders per 100 kilos multiplied by 1.34 will give the price in cents per gallon.—Ed.]

### Cottonseed-Oil Notes.

THE Laurinburg Cottonseed Oil Mill at Laurinburg, N. C., commenced operations some days ago and is now running regularly. The daily consumption of seed averages thirty tons.

THE exports of cottonseed oil from the port of New York for the week ending October 19 were as follows: British West Indies 200 gallons, England 5037 gallons, France 44,850 gallons, French West Indies 3114 gallons, Germany 30,091 gallons, Italy 12,500 gallons, Netherlands 22,708 gallons, Norway and Sweden 21,298 gallons, San Domingo 614 gallons—total 140,412 gallons. Since September 1, 1893, the exports amount to 770,263 gallons, against 1,234,042 gallons for the same period in 1892.

THE exports of cottonseed oil from the port of Baltimore for the week ending October 19 were 5250 gallons.

At a meeting of the stockholders of the Yoakum Cotton Oil Mill at Yoakum, Texas, held on the 16th inst., all of the directors resigned, and the following stockholders were elected in their stead: James Blanks, H. Newman, H. Quota, I. Path, I. L. Huth, W. H. Beasley and John Booth. The following officers were elected by the directors: James Blank, president; H. Newman, vice-president, and H. Quota, general manager. The mill will not be operated this season, owing to the scarcity of seed, but the machinery will all be set and everything got in readiness for next year.

THE cottonseed-oil mills in the South-eastern States complain of the quality of the seed coming to market. The late severe storms have placed most of the cotton in such a condition that a great deal of the seed is damaged. The mills have turned out very little prime oil so far this season. Millmen are hoping for some good weather so that they can get seed fit to make a good run for the season.

THE Charlotte Oil and Fertilizer Works at Charlotte, N. C., which have been shut down all the summer, started up last week. They have in store about twenty carloads of cottonseed with which to commence operations.

At Huntsville, Texas, receipts of cotton are more liberal, owing to the late advance. Seed is also being rushed to market, with the ruling price twenty-four cents per bushel. The oil mill at Belton, Texas, is running day and night, and cottonseed is selling from \$14.00 to \$15.00 per ton.

COMPETITION for cottonseed has been general among the buyers and millmen in Texas, and at present there is generally a lull in business. At Terrell, Texas, the fight is over, and mills have suffered more or less. The price offered now at that point is \$11.00, with receipts light. The Dallas, Greenville and a number of other Texas mills are out of the market, and are holding off to see what the oil market will develop before buying further supplies. The decline in oil has been induced by



many mills having to sell as fast as manufactured on account of banks not coming to their assistance, thus enabling them to store the product for a higher price.

MR. ARNOLD WILLEMSON, of Uerdingen-on-the-Rhine, was in Houston, Texas, last week and is traveling in the interests of the firm of Holtz & Willemson, of Uerdingen-on-the-Rhine, dealers in linseed, cottonseed, cotton meal and cake. Mr. Willemson reports business in his line as very good during the season, and says that prices of cottonseed bought in the United States have not fluctuated very much during the past few months.

COTTONSEED is in good demand at Eutaw, Ala., and buyers are numerous in the market. The price runs from eighteen to twenty-five cents per bushel. The Meridian Oil Mills and the Standard Cottonseed Oil Co., of New Orleans, are competing for the bulk of the seed on the market. Negroes are selling very close, and it is thought there will not be enough seed left to plant next season.

THE cottonseed-oil mill at Greenwood, N. C., lost its ginnery by fire on the 16th inst. It was valued at \$7000 and insured for \$2800. The oil mill was saved after a desperate struggle with the flames.

COTTONSEED at Moscow, Texas, was selling at twenty-five cents per bushel on the 14th inst. Receipts were liberal.

AT Waelder, Texas, farmers are rushing their cottonseed to market. The offerings on the 15th were quite free and the price paid was \$15.50 per ton.

THE extensive cottonseed-oil mill and guano factory at Blackshear, Ga., is now in full running order and is turning out the product as fast as the capacity of the plant will permit.

AT Hallettsville, Texas, the cottonseed market was quite active on the 16th inst. Receipts of cotton were larger than on any day during the season. Cottonseed advanced from \$10.00 to \$16.00 per ton, and buyers were anxious to get it at the outside figure.

THE cottonseed market at Memphis has been quite lively since the season opened. In some cases as high as \$18.00 per ton has been paid at interior towns along the line of railways terminating at that city. From \$14.00 to \$18.00 has been the range in prices for seed and competition is now at its height. The mills about Little Rock, Ark., have paid as high as \$19.00 per ton. The demand for oil and all other cottonseed products is very active at present and the market is firm for cottonseed oil, which ranges from twenty-five to thirty-four cents per gallon. Nearly 11,000 sacks of cottonseed, equal to nearly 600 tons, were received by steamboats alone on the 23d inst. and 1000 tons or more reported by rail.

#### Mexican Notes.

ACCORDING to data furnished by the statistical department of the Mexican government, the total value of real estate in the republic is \$497,865,196, of which \$260,552,200 is town property and \$237,312,993 is rural land.

COL. S. M. JOHNSON, general manager of the Mexican International Railway, states that there is no prospect of his company extending its line from Durango to the Pacific. He expresses the opinion that very little railroad building will be done in Mexico during the next two years.

THE El Carmen Mining Co., at Villadama, has elected the following officers: Joseph R. Levezey, of Philadelphia, president and general manager; Don Arnulfo Botello, of Villadama, vice-president; Don Antonio de la Garza, secretary, and F. H. Williams, assistant manager. Directors: J. R. Levezey, Arnulfo Botello, Antonio de la Garza, W. C. M. Jones and F. H. Williams. The El Carmen Company

gives employment to 450 miners, who get out tons of silver-lead ore daily. They ship it all to the Monterey smelters.

#### Litchfield Car Works Will Go to Memphis.

The location of the Litchfield (Ill.) Car and Machine Works at Memphis, Tenn., is now an assured fact, and the result is that the latter city secures one of the largest industrial enterprises in the country, adds fully 2500 people to its population, and its tradespeople will reap the benefit of the business which the increased population will give them.

As referred to editorially in the MANUFACTURERS' RECORD of last week, the corporation has decided to locate in Memphis largely through the efforts of the Young Men's Business League, as is indicated by the following letter from General Manager Collins, of the car works:

ST. LOUIS, October 19, 1893.

J. F. Peters, President; T. G. Bogg, Secretary, of the Young Men's Business League, Memphis, Tenn.:

Dear Sirs—After a full and careful investigation of the advantages offered by the various points to secure the location of our car shops, we have decided to locate at Memphis, and of the different sites examined at Memphis we consider the one known as Binghamton the most suitable for our purposes, and I now write to say that you can consider the matter settled, and that we will accept the Binghamton proposition and locate at Memphis, provided the question of freight rates on new cars and lumber can be satisfactorily arranged.

In writing you this I wish to express my appreciation of the courtesies shown us by the people of Memphis in general and yourselves and the Young Men's Business League in particular, and to say that our removal to Memphis is due entirely to the indefatigable work and persistence of the Young Men's Business League, and if you had not followed it up so closely and persistently we would never have located at Memphis.

Yours truly,  
C. F. COLLINS,  
for Litchfield Car Co.

This letter tells a great deal in a few words and shows the value of the organization to Memphis.

Negotiations for the removal of the site were opened fourteen months ago. The negotiations arose from the fact that a member of the league saw a notice in a trade publication that the Litchfield people thought of enlarging their plant. It was the same as dozens of notices of factory enlargements which appear weekly in the MANUFACTURERS' RECORD. Personal interviews followed correspondence on the subject, and finally a proposition was made to give a \$125,000 cash bonus and fifty acres of land in the Binghamton tract, which was formally accepted.

The Binghamton tract lies three miles east of the corporate limits of the city, running north from Poplar street boulevard to Summer avenue, east of Trezevant avenue. It is half a mile south of the Louisville & Nashville tracks and the same distance north of the Tennessee Midland Railroad, and is traversed for a-half mile east and west by the Raleigh Springs electric line. Of the 228 acres fifty will go to the Litchfield plant, and the remaining 178 acres will be subdivided into lots of 50x150 feet and sold. A main sewer will be run to Wolf river and the property otherwise improved so as to make it desirable for residents.

The land is the property of the following gentlemen: S. L. Finley, A. D. Allen, W. H. Bingham, G. D. Raine, Dr. W. B. Rogers, Dr. S. A. Rogers and J. W. Hayes.

The Litchfield Car and Machine Works ranks among the largest manufacturing plants in the country. The annual output of cars is about 5000. The company will open with a capacity for turning out fifteen cars per day. The work of drawing up the plans will consume about six weeks, and then the work of erecting the buildings will begin, and the plant will be in full operation by the 1st of May. The fifty acres of land set aside for the buildings will be enclosed by a fence twelve feet high. There will be twenty-nine acres of

floorage and five miles of tracks within the walls. The works will start with a paid-in capital stock of \$600,000, and will employ 750 men at the beginning. From 40,000,000 to 50,000,000 feet of lumber and 40,000 tons of iron will be consumed yearly.

It is expected that business will increase until the works will be enlarged so as to turn out forty cars daily and give employment to 1500 men.

One fact that led to the removal of the Litchfield works to Memphis is the cheapness of the raw material at this point. Lumber and iron are the materials they use mostly in the construction of cars. The company can save on iron and lumber \$43.61 per car, on an average, which represents the difference in the cost and freight, taking specifications on sixty-seven items entering into the construction of a car. Oak and pine are the lumbers mostly used. The oak will be secured on the outskirts of Memphis. The pine will come from Mississippi and Alabama. The iron will come from Birmingham.

Along with the Litchfield Car Works will come several smaller factories which depend for their patronage upon the car works, including axle forges, malleable iron works and other such institutions, and there are good reasons for the belief that several factories not in any way associated with the Litchfield Company will turn their attention to Memphis as soon as they learn of the determination of the Litchfield people.

#### Common Interests of West and South.

At the banquet at Old Point Comfort by which the inauguration of the Chesapeake & Ohio Steamship Co.'s service at Newport News was celebrated, Governor MacCorkle, of West Virginia, responded to the toast to his State. In the course of his remarks he argued forcibly the mutual interests of the West and South. From a printed copy of his speech, which Governor MacCorkle has kindly furnished us, we take the following significant passages:

"When I speak of the South and West I do not mean to be sectional and unpatriotic. When I discuss the North it is not from any spirit of partisanship or sectionalism. All patriots, whether North or South, should glory in the commercial greatness of the North. What I wish to assert is that the day is now on us when the South and West should join together in the great contest for markets rightly belonging to them. That great contest for commercial supremacy between the combined West and South, and against the North, is surely coming. Every interest of the South and West is together. Their every hope is intertwined. Nature has laid them in the same great physical system and in the same parallels of latitude. She has wrought her work so that the cheapest and quickest communication for the West with the nations of the earth lies through the sunny waves and deep ports of the South. The certainty of vastly increasing manufacturing in the West, the inevitable lowering of tariff duties, will also compel the Western producer to hunt new and foreign markets, and in these markets he must compete with the producer of the North. To thus compete and live he cannot go to market by circuitous routes, as every mile of increased route is equivalent to added cost of production. Necessity absolutely demands that the West should become more and more a manufacturing section, whilst at the same time her vastly increasing agricultural production and the inevitable settling and equalizing of prices demand that the West herself, armed cap-a-pie, enter the markets of the world. To succeed she must herself directly enter these markets unhampered by Northern middlemen or manacled by long transportation tolls. Tonight I declare to you that within thirty years the empire of manufacturing must be with the men listening to my voice. The cheapness

of fuel and raw material, the marvelous abundance of each in the West, the great advantages of climate and locality, the nearness to the great staples of the South, must all bear their fruition. The first cotton mill west of the great eastern divide began its song within the lives of men here tonight, and that the East cannot compete with you is today attested by the silent mills of New England. I stand here pleading for a united South and West. I ask no bond of politics, but the stronger and better tie of commerce and trade. I speak with reason when I say that the West will soon become the manufacturing centre of the world. The North and East are today entirely dependent upon manufacturing, and they manufacture the very articles which the West can manufacture cheaper and better. This will bring about year by year a less exchange of products between these sections. The West, not needing the products of the North, for she will herself be manufacturing them, must herself be a competitor of the North in every market of the world. She will need the readiest access to those markets independent of her great rival. To carry on this commercial war she must have the great and peculiar staples of the South, and this fact, irrespective of deep and close and direct Southern ports, will surely unite the South and West and make one dependent upon the other. Therefore, why should the West strengthen the arms of her great rival by giving to the North her export trade. The consequence of this direct export trade to the South and West is incalculable. New markets for our direct exportation means importation of foreign lands to us, and that importation must be as free from undue burdens and charges as the exportation. Today every bale of cotton, every bushel of wheat, every hoghead of tobacco and every product of the West and South goes to its ultimate market burdened with the charges of Northern merchants and shippers, and every dollar in money and every article of commerce resulting from the sales of those exports pays its exchange to the cities of the North.

"New York and New England conduct eight-tenths of the export trade, although nearly all those exports by which the imports are purchased are furnished by the South and West. You lend to the North 85 per cent. of every hundred dollars of her trading capital and get not a cent in return. Should this not cease? Should not we of the West and South be our own shippers and salesmen and money-changers? Should the giant be longer bound and should not the locks be allowed to grow? Can any reason be shown why we should longer give toll to our competitors? Nay, verily. Therefore, if the West is true to itself it will avail itself of its cheapest and safest route to the best markets, and that route is through the Southern Atlantic ports."

#### Should Go to Newport News.

The business men of Norfolk and Newport News are making a concerted effort to have the government award the contracts for building the last three gunboats for which bids were solicited to the Newport News Shipbuilding & Dry-dock Co. As is well known, this company was by far the lowest bidder for the work, but there is a disposition on the part of the government to give some other concern a part of it. Learning of this, the Board of Trade of Newport News appointed committees to visit Norfolk and ask the co-operation of business men in that city in securing the entire contract. The Business Men's Association, the Chamber of Commerce and the Merchants and Manufacturers' Association have all adopted resolutions urging the Virginia representatives in Congress to make every effort to have the entire contract given the Newport News people.



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BALTIMORE, OCTOBER 27, 1893.

JACKSONVILLE, FLA., has shown a decided spirit of enterprise in issuing \$1,000,000 of 5 per cent. bonds for city improvements. Eight per cent. city bonds amounting to \$200,000 now due will be retired and the remainder will be applied to city buildings, improving the water-front, paving the streets, extending the sewage and water systems and otherwise adding to the attractiveness of the city.

SOMETHING new in the way of canning has been adopted by a South Carolina planter, who has determined to turn the greater part of his rice plantation into a truck farm. This gentleman has erected a cannery to handle the surplus truck grown and, in addition, to can rice. He proposes putting it up in cans varying from one to three pounds, cooked in real old Southern style, such as is only found in the rice-growing districts.

It is estimated that by the time the World's Fair has closed the total number of paid admissions will be fully 21,000,000. Most of the concessionaires have made money, even after paying from 25 to 50 per cent. into the exposition treasury, their combined earnings being estimated about \$4,000,000. The Ferris Wheel Co., after deducting \$300,000 for cost and percentage to the exposition treasury, will clear about \$250,000 net. The combined profits of all is said to be about 20 per cent. of the gross receipts.

We referred some time since to the possibilities of utilizing the Florida pineapple fibre for making heavy cloths, bagging, rope or similar material. This is a matter well worthy of attention, as it would add a good income to the already rapidly increasing value of the pineapple crop to Florida. We should be glad to know if any of our readers have ever experimented in separating this fibre or in any way utilizing it. In Central America it is separated by the natives and woven into cloth for various purposes, some being fine enough for clothing, which is light, strong and cool.

THE prospect of a speedy termination of the discussion of the silver-repeal bill in the Senate is viewed by the business

interests of the country with immeasurable relief. The country is heartily tired of the long-protracted arguments by which the time of the Senate has been wasted, and an early vote on the pending legislation will help to place business once again upon its feet. The uncertainty has been the worst feature of the situation, for the dread of an impending disaster is often worse than the calamity itself. An early repeal of the Sherman bill, which now seems to be assured, will give a great impetus to business of every character and set in motion again the now idle wheels of industry.

THE declaration of a 3 per cent. dividend by the Sibley Manufacturing Co., of Augusta, Ga., adds another link to the chain of arguments by which the superior advantages of the South in cotton manufacture are maintained. The Sibley mills are among the largest in the South, having 35,000 spindles and 900 looms. In point of size and in character of equipment they will stand comparison with the large mills of the North. While so many of the older mills in Massachusetts and Rhode Island have been forced to suspend operations during the depression of the past summer, the Sibley mills have been earning a dividend. The company has just paid a dividend of 3 per cent. upon its capital stock of \$1,000,000 out of its earnings during the worst period of depression. The Southern textile manufacturers have suffered less than their competitors in the North during the last six months, and while many of the Northern mills have paid their usual dividends out of their accumulated surplus, the Southern manufacturers have been making goods and earning their dividends.

### The Southern Demand for Machinery.

We wish to invite the attention of manufacturers in the North and West to an opportunity which has not been sufficiently realized by them. In the West particularly the general depression in business has disheartened manufacturers whose trade is largely in their immediate section. Manufacturers of machinery and tools find that their trade in the West has been brought to a standstill by the stagnation so widely prevailing in that section. There is, therefore, the more urgent necessity for reaching out into new fields to make up for the loss of home trade. The best field in which to seek for trade of this character at present is the South. That section has suffered less from the financial and business disturbances of the past few months than any other section of the country, and the industrial activity of the South is especially marked at the present time in contrast with the depression elsewhere prevailing.

Our advice to the manufacturers of machinery in the North and West is this: Instead of closing your works because of the dullness of your home trade, look for business in the South. You can find a steady demand there for machinery, tools and supplies of every kind needed by manufacturing establishments. Consult our record of new enterprises, and you will see that the South is not at a standstill, but its industrial interests are developing day by day.

There is a constant demand for everything you have to sell in that section, and the people of the South have the money with which to pay for what they buy. Manufacturers of the classes represented in our advertising columns will find the South the most profitable field to cultivate for business at the present time. Our news columns show this in a manner that needs no further argument. Every day brings to us numerous inquiries from Southern concerns in need of machinery and anxious to know where they can make their purchases. It is our mission to show them where they can buy, and at the same time to show the manufacturers of the North and West where they can find purchasers for their machinery. The MANUFACTURERS' RECORD brings together more buyers and sellers of machinery than any other publication in existence; therefore we speak from actual experience when we say that the South is the most promising field in which to seek business of this character at the present time.

### A Means of Stimulating Foreign Trade.

The proposed action of the French government, sending to its colonies an exhibit of the products of French manufacturers, is an idea that might, with some modifications, be adopted in this country. We have not, of course, any colonies whose trade we want to retain in the mother country, but we have a rapidly growing trade in Mexico and Central America, with promising signs in South America, and if some association with sufficient public spirit would place in prominent cities in these countries an exhibit of our products, putting in charge of it some one capable of explaining and illustrating their uses, and, if thought desirable, of receiving orders for them, it would prove a strong factor in increasing this trade.

This is a matter that the South could readily take in hand. If the boards of trade and commercial associations of the various seaports and interior manufacturing cities would take the matter in hand, it could be accomplished. We now have steamship lines to various Mexican and Central American ports, to Cuba and South America. An exhibit, even though small at first, placed at these ports, or, if necessary, in the leading town or city nearest to them, would soon attract attention, and, what is more important, would lead to orders.

Of course, due discretion should be used as to what might be advantageously exhibited at each place. There would be little sense, for instance, in sending a cotton-picking machine to a country where nothing but fruit was grown, or coal washers where wood was the only fuel within a hundred miles, but giving the matter proper thought, exhibits could be prepared at small expense which would pay for themselves many times. No doubt the steamship companies would transport such exhibits at little or no cost, and it is also probable that the governments of the countries in which they were placed might be induced to give them their support.

This foreign trade should be taken in hand with more earnestness than has yet been shown. Brunswick, Savannah, Pensacola, Mobile, New Orleans and the other excellent Southern ports pre-

sent by long odds the best, easiest and shortest points from which to reach these countries by the sea, and each new vessel that is added to the trade increases the business and consequently the prosperity of the port. Already Northern and foreign capital has invested in these enterprises, and if the Southern cities will take the matter in hand in some such manner as has been indicated, they will be giving invaluable assistance in building up trade and industry, which is unquestionably one of the birthrights of the South.

### Southern Pig Iron in England.

The trial shipment of a few hundred tons of Alabama pig iron to Derby, England, by way of New Orleans, a few weeks ago, has been the subject of considerable comment upon both sides of the water, but a general lack of appreciation of the conditions has caused a rather mistaken view of the significance of this incident in the Southern iron trade. A plain statement of the facts in the case will afford a better understanding. The iron was charcoal pig, and was shipped by the Clifton Iron Co., of Ironaton, Ala. It was shipped on order, but as an experiment, and the makers hoped to build up a regular trade as the result of this trial order.

The shipment of this lot of iron does not mean that the way has been opened for an invasion of the British iron markets by iron manufacturers of the South, as might be inferred from most of the newspaper comments on the subject. As a matter of fact, there have been many previous shipments of American charcoal pig iron to England and there are likely to be many more. England has practically no home supply of charcoal pig iron, and all iron of that character that is used for steel-making and other purposes is imported, coming chiefly from Sweden. There is no reason why the high-grade charcoal irons made in the South should not compete for this trade, and the fact that several shipments have been made is an indication of the disposition of the English buyers to give favorable consideration to American iron.

We have yet to learn of shipments of American coke iron to England in competition with the British irons. It does not appear reasonable that such experiments should be tried under existing conditions, inasmuch as the prices of corresponding grades of pig iron at producing points in England and in the South are very close to the same figure. Even with free carriage from tidewater points in the South to an English port, Southern coke iron could not compete with British iron in English markets at the present time. If any heavily-stocked Southern iron manufacturer desires to find a market for his product regardless of what the iron cost, it is quite probable that customers could be found in England, but under such a pressure to sell it would not be necessary to go so far to find a purchaser.

The shipments of Southern charcoal pig iron to England form a gratifying testimonial to the high character of the Southern product, but they do not indicate that any section of this country is in a position to enter the British pig iron markets and wrest trade from the home manufacturers.



## FINANCIAL NEWS.

## The Financial Situation.

At the time of writing there is every indication that the Senate will come to a decision very soon in favor of repeal, and that the mist of uncertainty which has so long clouded business prospects will be cleared away. Since the prompt action by the House of Representatives, which induced a powerful reaction for the better, the confidence of money holders has returned so far as to replace their funds in interest ventures such as banks and some securities of a gilt-edge character. But very little has been placed elsewhere, the owners preferring comparative safety at from 3 to 5 per cent. rather than an investment in a manufacturing, mercantile or real-estate enterprise paying 8 or 12 per cent., but rendered hazardous by the uncertainty of action in Congress. This is, perhaps, one reason why the deposits in New York banks alone have increased \$88,000,000 in ten weeks, or nearly \$9,000,000 weekly. This holds good in the South also, as is shown by the following percentages of national bank reserves: Virginia, 28.28, against 25.71 July 12; West Virginia, 30.74, against 24.05 July 12; Maryland, 26.28, against 23.08; Arkansas, 39.26, against 34.15; Louisiana, 29.15, against 25.23; Tennessee, 35.64, against 29.81; Mississippi, 40.07, against 34.01.

This accumulation withheld from the channels of business circulation will be again placed in them just as soon as the present disturbing element is removed, and we again feel safe in predicting that the South will attract the attention of investors more than ever before, chiefly because its planters, merchants, manufacturers and bankers have shown how well they were prepared to withstand the business blight which so pervaded the country.

The past week has seen many changes for the better in the Southern States. Among them are the completion of repairs on the Louisville & Nashville Railway and the resumption of through traffic. The labor difficulties on the same line are also settled. The Tennessee Coal & Iron Co. will probably adjust the payment of its debt to the State of Tennessee in a few days. Advances from the Alabama mining and manufacturing sections state that several furnaces are about starting up, and that many concerns which were obliged to pay employees in scrip or due bills, owing to scarcity of the circulating medium, are resuming cash payments. As to general business, the conditions are surprisingly good. According to *Bradstreet's*, Atlanta merchants report satisfactory sales in leading lines, and manufacturers there have better demand for their product. Charleston reports renewed activity in fertilizers and rice. The request for turpentine and rosin at Savannah is more marked, and prices tend upward. General trade is brisker, but while cotton receipts are heavier, the demand is slackened somewhat. Freer sales of cotton at somewhat better prices and heavier marketings of rice at New Orleans have stimulated general trade, and the process of stocking up the interior storekeepers has begun. An improvement in demand is reported from Birmingham and Mobile. At Memphis and Nashville there is no change, which is true at Chattanooga, where there is a decrease in demand for hardware and better request for dry goods. Business at Augusta has not improved. At Houston the dry weather has interfered with the movement of staple merchandise. Trade at Galveston is unchanged, with a demand for funds from the cotton trade. Louisville, Ky., notes a marked improvement in business.

## May Settle the Suits.

A dispatch from Nashville, Tenn., states that Governor Turney, Attorney-General

Pickle, Treasurer Craig and Comptroller Harris, acting for the State, and President N. Baxter, Jr., Secretary James Bowron, John J. Vertrees and T. M. Stiger, representing the Tennessee Coal, Iron & Railway Co., held a conference relative to the State's claims against the company. No definite action was taken, but it is said that the matter would probably be amicably arranged and the suits withdrawn. The company's indebtedness to the State for rental is about \$150,000, and in addition to this the State claims about \$7000 or \$8000, which was paid out by way of rewards for capturing escaped convicts and other expenses incident to the mining troubles at Tracy City, Inman, Coal Creek and Big Mountain. The company, it is understood, is willing to pay the rental in full.

## United States Building &amp; Loan Co.

Articles of incorporation for charter were filed in New Orleans last week by the United States Loan & Building Co. The purpose of the company is to hold, receive, lease, purchase and convey under its corporate name property, both real and personal, and to loan money on security. The capital stock of the company is to be \$5,000,000 and will be issued in shares of two classes, "preferred" and "common," payable as follows: Preferred shares will be issued in shares of \$10.00 each, provided they shall be paid up in full at date of issue, and will not exceed \$200,000. The remainder of the capital stock will be common, divided into shares of \$100 each, to be paid in monthly instalments at the rate of \$1.00 a month per share, dividends on this stock to be computed semi-annually and not draw more than 6 per cent. per annum. The following persons constitute the first board of directors: William J. Young, Charles G. Peter and William H. Pilcher, with William J. Young as president, Charles G. Peter as vice-president and William H. Pilcher as secretary-treasurer.

## Southern Bank Changes.

N. P. Banks elected vice-president of the Columbus (Ga.) Investment Co.

I. W. Spencer has been appointed acting president of the Farmers and Mechanics' National Bank of Fort Worth, Texas.

Comptroller Eckels has appointed J. G. Hubbell, of Lexington, Ky., national bank examiner for the State of Kentucky.

Stockholders of the Farmers and Merchants' Bank of Shreveport, La., have elected L. M. Carter, president, and E. B. Rand, cashier.

## Interest and Dividends.

The dividends recently declared by the Baltimore & Ohio Railroad Co. amount to \$625,000 on the main line stock and \$82,500 on the Washington branch.

Assignee Jarnagin, of the City Savings Bank of Chattanooga, Tenn., has declared a 20 per cent. dividend to creditors, payable November 10.

The Sibley Manufacturing Co., of Augusta, Ga., has declared a dividend of \$3.00 per share for the last six months. The dividend will amount to \$30,000.

It is announced that the receiver of the First National Bank of Little Rock, Ark., has already realized enough on the assets to declare a dividend of 20 per cent.

## New Bond and Stock Issues.

The Shenandoah County Building & Loan Association of Woodstock, Va., has decided to increase its capital stock from \$500,000 to \$2,000,000.

The Georgetown & Tennytown Railway Co., of Washington, will issue \$10,000 in bonds, to be a mortgage on its property. It operates an electric road between the points named. President Offutt may be addressed.

## OPINIONS OF THE DAY.

## What Various Authorities Think of the Business Situation.

*Bradstreet's*: "The indifference with which the public regards the continued depletion of the treasury's gold reserves may be an indication of its belief that a change in the currency legislation is near at hand. Nevertheless, it cannot escape notice that the very feature of the financial situation which precipitated the panic of last summer is now present in an aggravated form, and that though the fact is the occasion of more or less anxiety in banking circles and among the official staff of the Treasury Department, the commercial community displays a remarkable absence of anxiety on this score."

R. G. Dun & Co.: "There has been much gain in hope and a little in business. Assurances that the repeal bill will soon be passed have again been accepted by traders as reason for buying things speculative at higher prices, and with money abundant on call, \$88,000,000 having been received in New York within ten weeks, speculation in stocks and products has an unusual stimulus, and would have expanded even more but for continued embarrassment of industries."

Henry Clews: "The past disasters have purged business of its weak points, and the basis of credit is sounder than it was before the depression. Monetary movements continue in the direction of an ease calculated to stimulate any reviving tendency that may arise in business. Throughout the entire country money is accessible to sound borrowers."

Hambleton & Co.: "The fact is the railroads of our country are confronted with a most serious problem. They must either reduce their expenses or increase their rates. For several years rates have steadily declined, while expenses, especially wages, have steadily advanced. There must be an end to this condition. The alternative is bankruptcy."

## New Financial Institutions.

A bank is being organized at Onancock, Va., which at present is without banking facilities. E. A. Herbst is among those interested in the matter.

The People's Building, Loan and Saving Association has been organized at Houston, Texas, with R. C. Wilson, president; Charles P. Shearn, vice-president, and J. D. Howth, secretary.

A new bank is being organized at Maryville, Tenn., to be known as the Bank of Blount County.

A private corporation, to be known as the Landis Banking Co., is preparing to begin business at Nashville, Tenn.

Otto Groos has opened a private banking-house at Kyle, Texas, with \$25,000 capital.

The Richmond (Va.) Mutual Fire Insurance Co. has been chartered to do business with \$50,000 capital. The officers for the first year are Charles E. Whitlock, president; Beverly B. Munford, vice-president; Albert Blair, secretary, and George D. Pleasants, general agent.

## Failures and Suspensions.

The P. H. Wolters Brewing Co., of Savannah, Ga., has gone into the hands of a receiver. Its capital is \$50,000.

Stratton & White, dealers in agricultural and electrical implements at Fort Worth, Texas, have made a deed of trust. It is understood that the firm has good collateral, but cannot realize to meet certain payments. It is estimated as worth over \$200,000.

J. H. Bartlett, of Middlesborough, Ky., and Clarence Cary, of New York, have been appointed receivers of the American Association, Limited, which owns about 100,000 acres in the vicinity of Middles-

borough. The petition for receivers was made by the Central Trust Co. of New York.

Thomas J. Shryock has been appointed receiver for the firm of A. Storck & Sons, owners of a sash factory and planing mill at Baltimore. The liabilities are estimated at \$50,000.

## Banks Resumed.

The Bank of Sumter, at Americus, Ga., has resumed payments and is again doing business as usual. When it opened its doors its vaults contained over 25 per cent. of the total amount of its deposits in cash. Its capital is \$50,000.

## Financial Notes.

THE Mutual Annuity Co. of Staunton, Va., has decided to close its business and has appointed Henry W. Holt its trustee. It conducted a life-insurance business.

THE general council of Louisville, Ky., has decided to borrow \$250,000 on its note to meet current expenses.

AN Asheville (N. C.) dispatch states that English capitalists are desirous of purchasing \$300,000 in bonds of that city, but desired the payments at maturity to be in gold. The city council is averse to making such an agreement.

THE Charleston (W. Va.) city council has voted for a resolution urging the repeal of the silver bill.

## A \$250,000 Washington Apartment-House.

In spite of the wide extent of building operations in Washington during the past year new structures continue to be planned and built which cost from \$100,000 to \$500,000 each. One of the latest sets of plans prepared is for a \$250,000 apartment-house to be ten stories high and to be 120x100 feet in dimensions. The architecture is to be of the Grecian period, and the materials will be of buff brick and Portage stone. Modern inventions will be utilized wherever possible, and the building is to be as nearly fire-proof as possible. It will be heated by steam, lighted by electricity, and will be finished with tiled vestibules, fireplaces, cabinet mantels, and will be provided with two elevators. T. F. Schneider, the architect, has such faith in the enterprise that he is to be one of its owners.

## Growth of Schools in Georgia.

The increase of educational facilities in Georgia in the last twenty years is well shown by the annual report of the school officials of Bibb county, recently issued. There are 6146 pupils enrolled in the county, of which 2694 are colored. The yearly expenses for school purposes was \$66,069.77. The value of the school property in city and county is \$150,000. In 1873 1516 pupils were enrolled; the expenses amounted to \$21,715.02, divided among twenty-three schools with forty-one teachers. The present number of schools is forty-nine with 120 teachers. This is an increase of 400 per cent. in the number of pupils, 300 per cent. in the number of teachers and 300 per cent. in the amount of money needed for expenses.

## To Build a University.

The Freedman's Aid and Educational Association of Cincinnati proposes to establish a university at some city in Alabama for the education of colored students if sufficient inducements are extended in the way of a land grant for a site. The colored people of Mobile have organized a committee to try and obtain a site, and it is stated that several prominent citizens will donate sums of money if the university includes an industrial or mechanical department. The college is expected to cost \$150,000.

## TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department, on page 224.]

## Cotton-Picker Experiments in Texas.

A mechanical cotton harvester was given a practical field trial at Cuero, Texas, last week, with results that appear to have been rather satisfactory. The machine was that made by the Southern Cotton Harvester Co., of Galveston, of which Mr. Isaac Blum is president. We take from the *Galveston News* of October 18 the following description of the machine and the trial in the field:

"The machine consists of a rectangular frame or 'cage' eight feet long, four wide and four high—the dimensions of a cord of wood. It is mounted sulky fashion on iron wheels connected by a rigid iron axle braced upward and across the top of the frame, like the axle employed on cultivators and sulky plows. The sides of the 'cage' are covered with wire netting, and the front end slopes inward from either side to a central plane four inches wide vertically through the length of the machine, and this is the space occupied by the cotton plants as the harvester passes along. The bed or platform of the machine is slit lengthwise through the middle, making the central space or plane continuous from the top to the ground. Along both edges of this slit or channel in the platform is a row of small copper plates, each about the size of a baby's hand, fastened at one end and closing nearly together over the channel by means of individual springs, so that in taking a row of cotton plants the plates tenderly clutch the stalks and 'give' to the irregularities of the row or to the varying sizes of the stems. The machine rides a few inches above the ground, and in this respect is adjustable by a ratchet, raising or lowering to suit the elevation of the row. Now, with the machine started, straddling a cotton row and drawn by two mules in an ordinary plowing gait, giving motion to the interior machinery, it can be imagined clattering along with the cotton plants encompassed and left to the mercy of the contrivance within.

"The pickers proper are very simple arrangements, but somewhat difficult to describe without the aid of diagrams. On either side, along the platform channel and central plane, is a row of upright rollers or cylinders, five on each side, each containing three horizontal rows of small wire pickers, each row studded with sixteen pickers, making some 5000 pickers altogether. This roller is really a shaft, on which are placed thirty discs of wood, one upon top of the other, like a stack of poker chips, the upper side of each disc being grooved near the outer edge, and in the grooves are set sixteen hardwood pegs, and on these pegs are fixed tiny coils of small wire with one end jutting out a little more than an inch and the end slightly bent backward. The discs, and of course the roller, are about nine inches in diameter, and the rollers revolve inward and backward about four inches apart, so that the cotton plant is fed back or the machine fed forward as it moves along.

"Back of the rows of picking rollers are two roller brushes, one on each side of the channel and directly in line with the picker rollers. These brushes revolve inward and forward. In the machine on exhibition the brushes are mounted with common broom straw, but the design is to mount them with flat steel, like whalebone.

"As the machine moves along the cotton stalks are straddled and pass between the rollers, the wire pickers snatching the open cotton, with a liberal supply also of twigs and leaves, but the pickers are so flexible that scarcely a boll or bloom is disturbed. The cotton is thrown off the pickers by

centrifugal motion as they turn around to the screen sides, and it falls to the outer edge of the platform upon a belt running backwards and upwards at the end into a double-belt elevator and through a chute to bags suspended on the rear.

"The machine weighs about 1700 pounds and is operated by two men, one to drive the team and the other to handle the bags. The machine takes one row at a time and doubles back over the same to catch cotton that faces with the direction of the first trip. The disc, being movable, can be detached from the upper part of the shaft so as to confine the pickers to the cotton upon the lower part of the plant at first pickings and leave more space above for the limbs with their fruitage of bolls and blooms.

"In the present machine the axes of the roller shafts are so fixed that the space for the plants is just four inches, no more, no less, but it is the design of the maker to set the lower axes of the rollers on a spring base, with the upper in ball and socket joints, so that the rollers will spread out at the base automatically to accommodate cotton of larger and bushier growth without affecting the utility of the pickers, which will still reach into the foliage and extract the staple.

"The test yesterday was made upon a well-spent cotton field of Mr. John Stutzel on the farm of Mr. William Hardorff, some two and a-half miles from Cuero. The cotton had been picked twice before and was well advanced, hanging loosely in the bolls, with a very few green bolls and some blooms, but with good foliage for the season. Three rows of about 100 feet each were picked by passing over each twice. The mules walked at an unusually fast gait, and on one section the machine gathered forty-nine pounds in forty-eight seconds. The speed that may be expected for ordinary work is the speed of ordinary plowing. It may be put down as the same as cultivator work. To put it more practically, the machine can cover the same area as a plow team 'running around' or 'barring off' cotton, which is about four acres a day—four acres a day with one pair of mules and two men. In good cotton this would gather some 4000 to 6000 pounds of seed cotton, equivalent to the work of forty to sixty hand pickers at an average of 100 pounds each a day. At the 4000 pounds estimate the cost of picking by hand would be \$30.00; by machine, the hire of a team and two men and the interest on the investment which means a great deal when it is remembered that some eight years and many thousands of dollars have been spent in bringing the machine to its present state.

"The results of yesterday's test are pronounced satisfactory by the spectators, who were men of all classes—bankers, merchants, cotton men and farmers. The cotton as picked was a woeful looking mixture of cotton, leaves and twigs. The machine had gathered the locks, but the output was 100 per cent. worse than any storm cotton that was ever considered worth the picking. The plants were somewhat bruised and the stalks considerably barked or 'shinned,' and here and there a limb was broken, but rarely was a green boll disturbed, and few, if any, blossoms were injured. Practical farmers on the ground were sure that the injury to the plant was really nothing in the final outcome. This point was pretty clearly demonstrated by examination of another field that had been picked by the machine about September 1 and again later, and now shows strong and healthy plants, with bolls opening as if the only invader had been Sambo with his deft and harmless fingers.

"The waste was small. Beneath the stalks of the picked rows were many dropped locks, about what would be seen in any cotton field after a sharp blow or in the track of a marauding cow, but not enough to constitute a serious leak or to impeach the success of the machine. The

trash in the cotton gathered was green, and it was stated by experts that in such a state the cotton could not be cleaned. The leaf must be allowed to dry a day or two, when another machine—a cleaner—at the gin-house takes out the foreign matter and leaves the staple comparatively clean.

"Dried cotton that had been picked by the machine was at hand and this was taken to the gin of Messrs. Runge & Co. in Cuero. The cotton was dirty enough. No self-respecting human picker would ever claim that it was hand-picked. It was machine-picked—no doubt of that. None but a senseless thing of wire and cogs would claim such a mass of 'dog tail' and none but a machine enthusiast would imagine that anything but 'dog tail' could come out of it.

"This cotton was run through the cleaner twice. The cleaner is a simple wire-netting barrel about ten feet long and five feet in diameter at the larger end, tapering to three feet at the other. A shaft runs through the centre lengthwise, and this is bristled with arms or beaters that revolve rapidly and pound the leaves and other trash into fine bits that sift through the wire. After twice passing through the cotton was comparatively clean of foreign matter and was then conveyed to the gin stand, from which it emerged as middling lint. The staple was examined by experts and so classed.

"Such was the work of the Southern cotton-harvester at Cuero yesterday. This observer has endeavored to set down the facts fairly and explicitly. Among the party present who witnessed the operations from first to last there was a general expression that the machine is a success. Certainly the test yesterday was a hard one. The ground was uneven and the stalks in the rows were not 'lined up' for a parlor exhibition. The conditions were such as may be encountered in the average cotton field. With cotton more carefully planted with a view to machine harvesting, and with improvements in the machine now determined upon, not to mention others that will come in the course of its development, the opinion was freely expressed that the cotton-picker has come to stay and to work."

## An English View of Colored Help.

The views of Southern mill managers, regarding the possibility of utilizing colored help for textile mill labor, which were published recently in these columns, have been reproduced by the *Textile Mercury*, of Manchester, England, with this introductory comment:

"In the United States New England has long been the chief cotton-manufacturing centre. When the brilliant inventions of Hargreaves, Arkwright and Crompton drew attention to the new development of the industry, it was inevitable that notwithstanding the most rigorous attempts to prevent a knowledge of the new machines being acquired abroad, the information, if not the machines, should filtrate thereto. It was equally certain that the States should be the country first to receive it. Kindred in race and language, and with constant intercourse going on between the two countries, it was inevitable that it should be so. Accordingly, no wonder need be felt that almost before the machines had got fairly to work at Cromford they were in course of erection in New England.

"Samuel Slater, an apprentice of Sir Richard Arkwright, was the person to take over the Atlantic both the knowledge and necessary skill, and in the States he is regarded with great esteem as the founder of New England's cotton manufacture. There has been developed a large industry from the seed sown by Slater, though nothing to compare, of course, with that which has taken place in this country.

"Times, however, are rapidly changing,

and the strong protectionist sentiments which New England has indulged for many years past have had the effect of bringing the Southern cotton-growing States into the field as rivals and competitors. One of the great difficulties apprehended was the obtaining a supply of suitable labor, the negro being regarded as not likely to answer the requirements, whilst the low white—or 'white trash,' as it is denominated—was hardly looked upon as either good enough in quality or in quantity sufficiently abundant. But both sorts have exceeded the anticipations, and are settling down to the labor of the cotton mills in such a manner as to afford great encouragement to mill speculators in the South. The growth of the demand for mill-workers is increasing so much that the supply, so far as the whites are concerned, may run short. This want or apprehension is, however, only beginning to be felt in some places, others still having an abundance of white labor, whilst the discipline of steady industry is greatly improving it. Mills, however, are being erected in such increasing numbers that, in view of a possible failure of the supply of white labor to such an extent as to impede the development of the industry, inquiries are being made as to the chances of utilizing the colored people."

## Water-Power at Augusta, Ga.

The city of Augusta, Ga., owes its prominence in cotton manufacture chiefly to its cheap and abundant water-power furnished by its canal. Regarding this canal and its power the following from the *Augusta Chronicle* gives some interesting facts:

The original canal, first level, cost about..... \$180,000 00  
Second and third levels cost about..... 90,000 00

Enlargement—Cost, including purchase of lands, damages, etc..... \$270,000 00  
908,565 71

Total cost..... \$1,238,565 71

Present value estimated to be \$1,500,000.

Length, main canal, or first level, seven miles; including second and third level, nine miles.

Established minimum dimensions, width at top 150 feet, 106 feet at bottom and eleven feet deep.

Minimum area of waterway 1408 square feet. Area of bulkhead openings 1463 square feet.

Mechanical power under minimum fall between main canal and third level, or river, 12,200 horse-power.

Whole water surface, including Rae's creek and other ponds, over 400 acres, exclusive of pond above dam and bulkhead. Present capacity, 12,200 horse-power. Number of horse-power used, 8937.

The power now consumed is figured as follows:

City pump-houses.....	400
Warwick Mills.....	112
Algeron Mills.....	217
Sibley Mills.....	1,365
John P. King Manufacturing Co.....	1,836
Enterprise Manufacturing Co.....	1,239
Augusta Factory.....	1,684
Augusta Flouring Mill.....	110
Dartmouth Spinning Co.....	250
Thomson-Houston Electric Co.....	650
Augusta Railway Co.....	500
Total first level.....	7,783

Globe Mills.....	166
Augusta Oil Co.....	78
Polar Ice Co.....	224
Crescent Flour and Meal Mill.....	172
C. F. Lombard.....	25
Crescent Flour and Meal Mill.....	172
Schley Flour and Meal Mill.....	63
Augusta Lumber Co.....	100
G. R. Lombard & Co.....	39
Total second level.....	1,154
Total.....	8,937
Minimum power available.....	12,200

Minimum power yet available for canal... 3,263

The water-power yet available in the Augusta Canal before any enlargement is necessary is sufficient for many more industries—two immense concerns the size of the John P. King Cotton Mill, which operates 40,288 spindles and employs 700 hands; twenty-five concerns the size of the Globe Cotton Mill, which operates 3000 spindles and employs 100 hands; more



than thirty concerns the size of the Augusta Lumber Co., which employs 100 hands; ninety concerns using power like the G. R. Lombard Iron Works, which employ 150 men, pay out \$1000 in weekly wages and make an annual output valued at more than \$200,000. In other words, for varied industries using power like these works, there is power enough yet available in the Augusta Canal, without enlarging the canal, to give direct employment to more than 13,000 laborers, who, if they were of the same class of skilled labor, would receive more than \$90,000 in wages weekly, \$360,000 monthly and more than \$4,500,000 annually. The development of the power according to this calculation and following this method, where a small amount of power is used and much mechanical and physical labor is employed which receive the wages given to skilled labor, is the development and sort of development along the line of manufacturing that chiefly is desired by the people of Augusta. The development of this power in this manner would add directly more than 50,000 to the population. And in woodworking, car, agricultural and other works of this character, much needed here, the opportunity for this kind of development is open.

#### Atmospheric Conditions in Factories.

[Boston Journal of Commerce.]

The success of textile manufacturing is very largely due to the state of the atmosphere within the mill, and in order to obtain the proper atmospheric conditions it was necessary, in former years, to locate the mill, geographically, where these conditions existed naturally. The importance of this grew with the tendency toward fine yarn spinning, for which temperature and humidity became factors of the greatest consequence. This applied with especial force to the spinning of cotton, and, next to a sufficiency of water-power, climatic conditions were regarded with more than ordinary concern. Both of these elements, that have been considered so essential to success, are no longer held in other than secondary esteem. Today a factory can be located anywhere to suit the fancy or convenience of the owner, the economy of the waterfall being no longer a necessary factor, nor the changes of the weather anything to be studied with apprehension. Mechanical inventions have stepped in, to the great relief of the situation and greatly to its improvement. The steam engine has more than taken the place of the waterfall, and the former, in connection with the electric dynamo, may soon take the place of the latter in many places, while all the necessary climatic conditions within the mill can be regulated by artificial means with far more satisfaction than it is possible to obtain from nature.

The reasons for cotton spinning poorly under certain atmospheric conditions and well under others have never been satisfactorily ascertained. Practical men have and do differ as to the causes, usually prevailing in August, for instance, which effect the even running of cotton in the drawing and spinning departments of a mill. The troubles then liable to exist are attributed by different ones to too high temperature, to excessive moisture or to too much free electricity. Now, it is not at all impossible that the troubles complained of are due to a combination of one with another of these causes. But whether that is so or not, the issue in all of these points is already met, and artificial or mechanical appliances have been invented and introduced into mills for overcoming the objections attributed to any or all of the above causes. These appliances or devices are already in great favor with millmen, those already on the market having their respective advocates. They have solved the question and rendered it practically valueless as to where is the best location for the establishment of a cotton mill for fine spin-

ning. Lancashire, England, became the great seat of cotton spinning because of its natural climatic conditions, and though cotton manufacturing in the United States was established in New England and the South for reasons other than those belonging to atmospheric causes, still the fact that climate is recognized as an important factor in the proper manipulation of cotton is oftentimes an influence in determining where a mill shall be situated. It might be a matter of questionable wisdom to erect a mill in central New York State for spinning very fine yarns, when equally good facilities could be found for the erection of the mill in the southeastern section of New England, where it has been demonstrated that atmospheric conditions are more favorable for such manufacture. We say this provided the natural disadvantages could not be overcome, which, fortunately, owing to comparatively recent inventions, can be by artificial means known generally as humidifiers or atomizers.

Inventions for regulating the temperature and humidity of the atmosphere have now reached such a state of perfection that natural climatic influences are of secondary consideration, and it is doubtful if they are entitled to any consideration at all. It is almost a question if they have not rendered the worst natural locations, where the atmosphere is the driest, the best for cotton-spinning by their capacity of regulating the relations between temperature and humidity by raising the conditions better than they can be lowered. The position of cotton-spinning has become such that a mill equipped for spinning any count of yarn, especially fine counts, cannot compete advantageously in the economy of manufacture without some efficient system of controlling the temperature and humidity of the atmosphere, and if a manufacturer waits till a system has attained the acme of efficiency he will have to wait forever. A perfect equilibrium between temperature and humidity may not be a thing possible of maintaining for a long series of hours, but it has been demonstrated that it is capable of being maintained approximately, or near enough for all present practicable purposes.

#### Cotton Market.

NEW ORLEANS, LA., October 23.

Editor Manufacturers' Record:

The crop movement has commenced to assume much freer proportions and the influence is being felt both in foreign and home markets. The decline in Liverpool has been twelve-sixty-fourths within the past two days, and both New York and this market show correspondingly lower prices. The weather has been of a character extremely favorable for the gathering of cotton, and the present movement is no more indicative of the crop outturn than was the scant movement of a few weeks back. The idea that an advance would occur, together with a better financial condition, enabled the planter to withhold shipments, while, on the other hand, extremely favorable weather for harvesting and more satisfactory prices have led to realization and tended to accelerate the movement.

The protracted delay of the Senate in reaching some final conclusion as to the silver question has been a continuous element of depression, as it was hoped that some action would be taken which, if not wholly remedial, would at least be contributory to the restoration of confidence. Capital will be slow to seek investment so long as the existing status continues, as it tends to debase our currency like that of the neighbor republic whose dollar, while intrinsically richer in silver than ours, can be had for fifty-eight and a-half cents. It is a well-established axiom of political economy that "bad money drives away good," and the absence of gold in Mexico clearly illustrates its truth. It seems to us

that any permanent good must be resultant from such legislation as will be of benefit to the whole country, and that so long as the manufacturing interest is crippled by local or class legislation, just so long will other industries suffer in not finding competitive markets. The value of silver, like that of any other commodity, must ultimately be regulated by the law of supply and demand, as there exists no good reason why this country should foster any particular industry at the expense of others.

Crop estimates tend to higher figures, but it must be borne in mind that while the favorable weather of September and the early part of this month has contributed to augment the yield, much of the damage sustained in August was irreparable, and the accretions to the crop have been more largely due to the favorable picking season than to any development of the plant, and such sections as were being benefited were recently visited by severe frost and the promise of further improvement curtailed. The world's visible supply was on last Saturday 2,387,000 bales, against 2,680,000 last year. The gain of American this week is 223,000, against 162,000 gain of the corresponding week last year.

ATWOOD VIOLETT & CO.

#### CLOSING PRICES OF COTTON FUTURES OCT. 25.

Months.	New Orleans.	New York.	Liverpool.
November.....	7.47	8.02	4 25-64
December.....	7.80	8.11	4 24-64
January.....	7.87	8.20	4 25-64
February.....	7.93	8.27	4 27-64
March.....	8.01	8.35	4 29-64
April.....	8.07	8.42	4 31-64
May.....	8.14	8.49	4 32-64
June.....	8.21	8.56	4 33-64
Tone of market.	Steady.	Firm.	Barely steady.

#### CLOSING PRICES OF SPOT COTTON OCT. 25.

Grade.	New Orleans.	New York.	Liverpool.
Middling.....	7 1/4	8 5-16	4 9-16
Low middling...	7 1/8	7 7/8	4 3/4
Good ordinary...	7 1/8	7 3-16	4 3/4
Tone of market.	Quiet.	Qu'.	Quiet and steady.

#### Southern Textile Notes.

THE Dallas Cotton Mills at Dallas, Texas, a plant of 10,000 spindles and 260 looms, has resumed operations with a full force of operatives.

THE Cherryville Manufacturing Co.'s yarn mill at Cherryville, N. C., is running on half time owing to the financial depression, it being found impossible to make sales at remunerative prices.

THE Rome Cotton Factory at Rome, Ga., is operating to its full capacity, not having been affected as yet by the unsettled conditions prevailing in business. Mr. Henry Harvey is president of the company.

THE Algernon Mill at Augusta, Ga., Messrs. McGaw & Brotherton, proprietors, has resumed operations with a full operating force. The plant runs 4410 spindles and 150 looms, producing yarn, rope and plaids.

THE directors of the Camperdown Cotton Mills at Greenville, S. C., have held a meeting and decided to operate the plant on half-time, owing to the embarrassed condition of business generally. This mill has 11,000 spindles, and produces yarns.

THE plant of the Eagle & Phoenix Manufacturing Co. at Columbus, Ga., has resumed operations on full time, thus affording employment to 2000 operatives. This mill contains 40,000 spindles and 1500 looms and produces a variety of goods, including yarns, sheetings, shirtings, osnaburgs, ginghams, threads, cottonades, woolens, etc.

THE Powhatan Manufacturing Co. is operating its cotton underwear mill at Lambert's Point, Va., on full time, 180 hands being employed. The average production each week is 1600 dozen garments, which are shipped direct to the New York market, there finding a ready sale. The

company has recently added an equipment for protection from fire, including a reservoir holding 100,000 gallons of water.

PLANS for the new cotton mill to be built at Norfolk, Va., are now being prepared by Mr. H. S. Chadwick, the engineer in charge. The main building will be 226 feet long by eighty-four feet wide, two stories high and built of brick. The warehouse for cotton will be a one-story brick structure, 60x50 feet in size. The plant will be equipped throughout with a full complement of the latest improved machinery, 6000 spindles, to spin and warp a fine grade of yarn, for which production there is a ready market. The engine and boiler-house, etc., will be built with a view to future enlargement. A suitable site has been secured between two railroads, affording ample facilities for shipping goods.

#### Alabama Iron Trade Improving.

In spite of the general opinion that at present the iron industry is everywhere more depressed than at any time this year, the following news items from Birmingham shows that the situation is decidedly improved in Alabama:

"Several furnaces are making preparations to blow in during the coming month, as there is a somewhat better feeling in the iron market, with indications of an advance in prices before a great while. At present ten furnaces out of the twenty-five in this district are in blast. This is an increase of one over the number three weeks ago. It is said that one of the Ensley furnaces is ready to go into blast, and will probably be blown in soon. At present two furnaces are in operation at that place. The Trussville furnace will start up again about the middle of November at the latest. It has been rumored for some days that the Alice furnaces and the Mary Pratt would all blow in very soon.

"If the iron trade improves as iron men now seem to think it will within the next four or five weeks half a dozen of the idle furnaces will resume work.

"Within the last week or ten days all the mining companies in this district have resumed cash payments, the Sloss Iron & Steel Co. being the latest to take this important step. That company has paid off at Cardiff for August and September, also at Brookside, Coalburg and its other mines. The Tennessee Coal, Iron & Railway Co. has made cash payments on its back dues to the miners at Pratt Mines, Blue Creek and Blocton. The American Coal Co. paid off last Saturday, and the Virginia & Alabama Coal Co. has also paid off in cash.

"Superintendent B. W. Whitfield, of the Galloway Coal Co., at Galloway, near Carbon Hill, was in the city a few days ago, and when asked regarding cash payments at his mines, said: 'We have never suspended cash payments. Our mines are running along as usual, and the men are being paid off on time.'

"The Howard-Harrison Iron Works at Bessemer continue to run on full time, and are shipping large consignments of iron pipe. This is one of the most important industries in this district."

#### Birmingham Wants the Cotton Presses

The Commercial Club of Birmingham, Ala., which is always alive to the interests of that city and section of the country, is endeavoring to have the city become more of a centre for cotton shipments, and is now agitating a plan to have the cotton compressed there instead of shipping "first baling" cotton. If the officers of the several roads leading to Birmingham will assent, the plan will be carried into execution at once. An estimate has been made that 50,000 bales are produced in the country around Birmingham, all of which could be compressed at fifty cents per bale, thereby saving much car room for other freight to New Orleans and elsewhere.

## MECHANICAL.

## Bristol's Recording Instruments at the World's Fair.

One of the attractive exhibits in machinery hall, section 25, is that made by the Bristol's Manufacturing Co., of Waterbury, Conn., as shown in our illustration (Fig. 1). Since its establishment in 1889, this company has developed an extensive business with Bristol's recording pressure gages and steel belt lacing. Their line of gages is now the most complete ever produced, comprising a list of over twenty different ranges from vacuum to 1500 pounds per square inch and adapted to record continuously day and night pressures of air, gas, steam, water and liquids.

The corner space occupied is diagonally spanned by an excellent imitation of a stone arch, the facing of fine leather and the stones fastened together with the company's patent steel belt lacing. To each of the stones is attached one of their gold-plated recording gages, every alternate instrument being provided with an electric light.

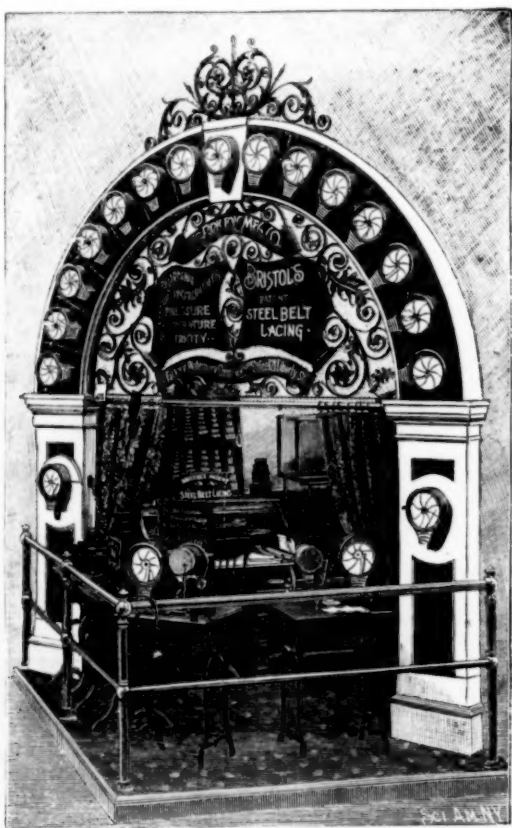


FIG. 1.—EXHIBIT OF THE BRISTOL'S MANUFACTURING CO. AT THE WORLD'S FAIR.

On one pillar supporting the arch is a gage in operation recording the pressure of steam used in the building. On the other pillar of the arch is one of their new recording voltmeters in operation recording continuously the voltage of the alternating current which supplies the lights. An artistic and ornamental feature is the semi-circular grille of wrought iron which fills in the arch and bears the name of the company and their specialties.

Models of the different recording instruments are arranged on tables so that visitors may examine the construction. For the high pressures a hand screw pump is provided, but for low pressures a gage is fitted with a mouthpiece and each visitor can operate the model by blowing. A new recording thermometer is also shown in operation, but it will not be placed upon the market until their recording pyrometer is ready. A complete line of their patent steel belt lacing for all kinds of belting is also attractively displayed. Outside of their exhibit, there are eight of Bristol's recording gages in operation at different points in the fair grounds.

As the new recording voltmeter for alternating or direct currents has not been previously described, we illustrate the instrument (Fig. 2) complete, ready for connection, and also with front of case removed (Fig. 3), from which the extremely simple construction and manner of operation will be readily understood.

The coil A is mounted on the spring knife-edge supports D and E and free to move toward the parallel and stationary coil B, when they are mutually attracted to each other by a current passing in series. The current is conducted to the movable coil A through the supporting springs D and E, and this, together with the special feature of the moving coil being mounted on frictionless spring knife-edges, renders the instrument extremely sensitive to the smallest changes of voltage. The marking arm F is attached to the spring E and partakes of its motion, recording the changes of voltage on a uniformly revolving chart. It will be observed that the instrument is constructed on the electric balance principle without permanent magnets.

The divisions on the chart are on an

water, nor their effect on the material of which the boiler is constructed, but will merely relate our experience with it as an ordinary practical shop experiment covering a period of over six years.

We use a plain tubular boiler forty-four inches diameter, fourteen feet long, with thirty-eight three-inch tubes and a grate surface of sixteen square feet. It gen-

erates steam for a ten hundredweight steam hammer, and also a vertical engine coupled direct to a forging press. We consume on an average 2000 pounds Wellington screenings per day of ten hours; this includes the coal used in banking the fire over night. We wash out the boiler every two weeks, and bank the fire over the intervening Sunday.

Before we tried the oil we were using a



FIG. 2.—NEW RECORDING VOLTMETER.

erates steam for a ten hundredweight steam hammer, and also a vertical engine coupled direct to a forging press. We consume on an average 2000 pounds Wellington screenings per day of ten hours; this includes the coal used in banking the fire over night. We wash out the boiler every two weeks, and bank the fire over the intervening Sunday.

well-known scale resolvent, and, in the language of the fireman, "the boiler was as clean as new, because the scale was not so thick but that we could count the rivet heads." Of course the bottom sheet of the boiler was comparatively clean where you could get at it to hack the scales off, but among the tubes and on the shell of the boiler back of the tubes and on the tube

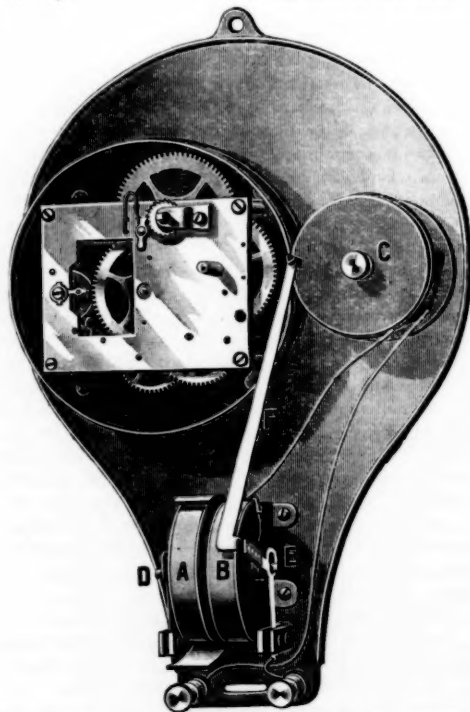


FIG. 3.—NEW RECORDING VOLTMETER—FRONT CASE REMOVED.

Our method of using the oil is as follows: When we wash out the boiler and re-fill it we put in two quarts of the cheapest coal oil that we can buy, generally about 100 degrees fire test. Below the suction pipe of the injector, and connected to it by means of a T and two cocks, we have a well, the capacity of which is about a quart. In about three or four days we fill this well with oil and the feed-water passing over

heads the scale was very thick and hard. Since we have used the oil we have not found it necessary to use any mechanical means to keep the tubes and tube heads in order. Of course the oil does not prevent the precipitation of the lime that is in the water, but it is in the form of loose scales and does not adhere to the iron. Usually it collects on the crown sheet in a little scattered pile, just as it would gradually

increased scale in the vicinity of the voltage to be maintained, thereby making it possible to note the variation of one volt. The chart shown (Fig. 2) is intended for a 110-volt circuit. The coil C is an auxiliary resistance. With the alternating current voltmeter the auxiliary resistance is furnished in a separate rheostat which may be adjusted to suit the rate of alternation of the current to be measured.

Several of the instruments have been in use in large electric-light stations for the past three months, and are giving the highest satisfaction. One of the voltmeters is on exhibition in the electricity building. Two of them, one alternator and one direct current, are being used by the committee on awards in connection with the life tests of incandescent lamps.

## The Use of Coal Oil in Steam Boilers.

[A paper read before the Technical Society of the Pacific Coast by W. A. Doble.]

I will not treat this subject from a scientific standpoint, and will not attempt to deal with the chemical action of the various resolvents on the lime, etc., in the



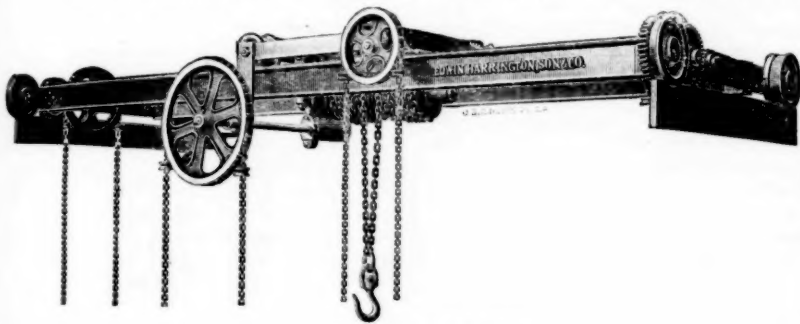
settle, while the circulation of the water became less and less as the fire cooled down.

The tubes, shell and tube sheet are practically clean and without any scale whatever. Sometimes there will be a little particle of thin scale, but the next time we clean out that collection of scale will be gone, and may be a little collection will have settled on another spot, but it is always thin, not over one-thirty-second of an inch, and is loose and can readily be picked off with the thumb nail. Our boiler is now over eight years old, and we have not put any repairs on it other than to put in new grate bars and fire-door liners. The duty is heavy, as the steam hammer is a very irregular consumer of steam, and the vibration and concussion is severe on the pipes, settings and connections, so that we consider this a very fair record.

#### A New Foundry Hoist.

The value of any hoisting apparatus for foundry or other fine work depends upon its more or less perfect running. Thus, for the lifting of copes or molds the ordinary chain or sprocket-wheel are almost useless. Made as carefully as possible, a chain running over a sprocket-wheel will, as each link leaves its pocket, jar the load. The sand is liable to crack and the mold to break down.

With a view of obviating this difficulty a new crane has been designed by Edwin Harrington, Son & Co., Incorporated, at Philadelphia, Pa. That it is a great success the accompanying letter from Isaac A.



A NEW FOUNDRY HOIST.

Sheppard & Co., the Excelsior Stove Works and Hollowware Foundry, Philadelphia, will show: "In reply to your inquiry of the 14th inst., we would say that we are greatly pleased with the special foundry crane which you recently erected in our foundry. It is in every way perfectly adapted to the use for which it was intended, and lifts a mold absolutely without jar, so that we have not had the least trouble with the breaking down of a mold at the critical point. For a light foundry crane we hardly see how it can be improved upon.—Isaac A. Sheppard & Co."

As will be seen by the engraving, the sprocket-wheels of the hoist have been replaced by a drum having right and left spiral grooves, thus insuring the hanging of the hook always over the same point. There is no jumping or jarring. The movement is sure and steady, the chain winding and unwinding with the regularity of a rope on a windlass. Thus, the cope can be lifted and lowered with no danger of the sand sifting out or the mold "breaking down." The internal gears of this hoist are worked by means of a shaft extended far enough beyond the beam of the bridge to prevent the chain from interfering with the load, and this also enables the operator to stand at a respectful distance from a pot of melted iron.

The crane is operated by geared wheels throughout, and the shaft of the crane is placed inside of the beam, thus saving room, and it moves the crane by pinions and intermediate gears, all of which are furnished with roller bearings, producing easy movement.

#### The Commercial Traveler—The Good Samaritan.

On the occasion of a railroad disaster a salesman of the Joseph Dixon Crucible Co., of Jersey City, N. J., was a passenger on the train. His presence of mind saved from more than slight injury a well-known clergyman. Subsequently the reverend doctor wrote the company complimenting the salesman, and expressed himself as follows regarding the traveling fraternity:

"Years ago, in a lecture, I remarked that the good Samaritan was a commercial tourist (drummer). If a man ever wakes up about midnight with the bottom side of his coach in the direction of the stars, he will think that I am right. The drummer of Samaria had the best of oil and wine. The drummer of Jersey City had the best of pencils and the kindest of hearts. The iron horse will dash and the electric light will soon flash through the land where Christ and his apostles once held sweet converse in regard to who was really our neighbor. Methinks I hear the conductor at Jerusalem say, 'All aboard for Jericho. Passengers for Moab take seats in the front car.' The train may be wrecked. If so, I venture to say that the ubiquitous drummer will be the first and the last to administer to the wounded and the dying, while the fat priest and bloated Levite will either be asleep in the Pullman, waiting for the black porter to call them up, or whining about the loss of a silk umbrella or gilded prayer-book. The Jersey City

drummer will never be known on earth as extensively as the Samaritan, but I am certain that his name will stand as high and his reward be as great in that land where all men will be rewarded according to the deeds of mercy which they perform in this. I know that many of the commercial agents have some habits in error. Yet I want it distinctly understood that the sexton of the church where I am pastor must always invite the commercial traveler to a front seat."

#### Abrasive Materials at the World's Fair.

In machinery hall at Chicago several emery-wheel makers have full and interesting exhibits of a commercial character. The Tanite Co., of Stroudsburg, Pa., was requested by the exposition authorities to treat "abrasives" from an educational standpoint. The exhibit here described is the result, and its compact character is due to the fact that the exhibit will be presented as a gift to the Smithsonian, the Chicago University or some other suitable institution. While some of the articles were furnished by the Tanite Co., many were contributed by liberal-minded manufacturers.

Emery, being the most important abrasive, is illustrated fully. Emery ore is shown from Turkey, Greece and the United States. In one piece clear blue sapphire can be seen with the naked eye. On a platter of pure aluminum are shown sapphires, corundum and emery, with the explanation that alumina is the oxide of aluminum, and that the articles on the platter are largely composed of crystallized

alumina, the sapphire being almost pure alumina. Emery is then shown in its successive stages—first, as it comes from the crusher; then in the form of grain and flour; then as polish (powder, liquid and paste); and, lastly, in the shape of whetstones and solid emery wheels. Fragments of various classes of tanite wheels are displayed to show the internal texture. There are bottles containing the dust gathered under tanite wheels after the grinding of cast, malleable and wrought iron, and of brass and steel. These are for experimental examination with magnifying glass and magnet.

"Petrified sparks" are an interesting feature. These are strangely shaped cones formed of the matter which fuses below an emery wheel when grinding under heavy pressure. The comparative products of the emery wheel, file and cold chisel are tabulated on a framed sheet, while the case contains pieces of cast-iron and saw-steel with the cuts made by the file and wheel. The piece of saw-plate demonstrates that in a given time the wheel did 126 times as much work as the file. In the case and on the ends of the stand are numerous parts of machines, all of which have been surfaced by the Newman emery planer. These appear to be as true as if planed, and tabulation shows that this machine has taken a maximum cut one-quarter of an inch deep, and has taken a one-sixteenth-inch cut over a surface of 100 square inches in six minutes and nine seconds. Its ordinary cut is from one-sixty-fourth to one-thirty-second inch.

Emery wheels are usually thought of in connection with metal-grinding, but in this case are shown blanks for long combs and ladies' back combs made of vulcanite, and other samples showing that the long comb has been edged and the back comb had the spaces between the teeth cut out with tanite wheels. Glass guides from a silk-spinning mill are also shown. In these guides the silken thread wears a tapering groove which eventually breaks the thread, and these grooves are ground out by the use of tanite wheels.

As curious and instructive examples of abrasion, the parts of various machines used in the tanite factory are shown, all testifying to unequal and destructive wear due to unequal stress and the friction of emery dust.

Corundum is shown from Ceylon and from our Southern States in the form of mineral samples and also in grain. To the latter samples, as also to some of the emery samples, are attached analyses showing the proportions of insoluble corundum, of dissolved alumina, etc., etc. Samples of pumice stone and of rotten stone are contributed by T. Van Amringe, of New York. Baeder, Adamson & Co., Philadelphia, show rock flint or quartz and rock crystal garnet in rock, in grain and on cloth. Norris & Bro., Baltimore, exhibit India spar. B. C. & R. A. Tilghman, Philadelphia, show chilled iron shot. The Pittsburgh Crushed Steel Co. shows a full line of samples of their so-called steel emery, and the Carborundum Company shows that material rough and finished. Millstone rock is shown by W. & F. Livingston and by Samuel Carey, both of New York. Wm. M. Kirby, Pittsburgh, shows grindstone rock, as do also J. Westby, Levick & Co., Sheffield, England. J. B. Hull, Stroudsburg, shows in regular order the materials used in rubbing down granite and marble. Scythe stones, rough and finished, are displayed in great variety by P. M. Peterson & Son, Porsgrund, Norway. The Pike Manufacturing Co., of New Hampshire, also shows a great variety of natural whetstones, etc. D. A. Richardson, Helena, Mont., contributes rough sapphires, and A. W. & C. E. Tanner, Red Bluff, Mont., some fine specimens of garnet. Corundum is supplied to this exhibit by Ed. L. Hand & Co., Philadelphia, and

by George L. English & Co., New York. Among the curiosities of abrasion are the following: Leaves of the *Affenblatt*, used to clean gourds after the manner of sandpaper, contributed by Bolding Bowser, Esq., United States consul, Sierra Leone, Africa; wood of agave polyacantha, used for razor strops, contributed by Wm. P. Pierce, United States consul, Trinidad; Dutch rushes, or scouring rush (*equisetum hyemale*), from Yorkshire, England, supplied by David Brodie, M. D., London, and rush for same purpose, furnished by John Selwood, Stroudsburg, Pa. The epidermis of these plants is formed of silica and the rush is used to polish wood and metals. Shark skin is contributed by the Tanite Co. This is to be used in same way as emery cloth and sandpaper.

Samples of carbon, or black diamond, and also samples of clear or gem diamond, suitable for turning or dressing emery wheels, are shown by the Tanite Co. The evolution of razors and table knives is shown in two series of samples, beginning in each case with the rough ingot or blank of steel, progressing through various stages of polish to the final bright finish.

An interesting series of photographs shows emery veins and mining processes in Westchester county, New York.

The many articles already mentioned form only a part of this exhibit, but enough has been said to show how much unexpected interest, even for the unlearned, may be found in an exhibit whose name suggests nothing but a dry, hard, technical study.

THE third steamer of the Chesapeake & Ohio Steamship Co.'s large ships, the Shenandoah, arrived at Newport News on the 21st inst. She is of the same dimensions and capacity as her sister ship, the Rappahannock. The Shenandoah came over light and made the trip from West Hartlepool to Newport News in eleven days. Another vessel for the Chesapeake & Ohio Steamship Co., Limited, has been launched at Hartlepool, England. She is named the Chickahominy, and, like her predecessor, is for the general cargo and cattle trade. She will be fitted with triple-expansion engines, and it is anticipated that a sea speed of twelve knots will be easily obtained.

PROF. CABELL WHITEHEAD, from the office of the director of the mint, Washington, was in New Orleans last week inspecting the mint of that city. Professor Whitehead in his report will recommend a number of improvements, as much of the machinery is rather antiquated. The principal improvements are likely to be made in the refining department. There will, however, be a number of changes and improvements in the machinery in other branches. The mint as it now stands is inadequate to do the work the department requires, and a number of changes will be made to bring the capacity of the machinery up to the standard required.

THE vicinity of Luling, Texas, is considered one of the best for grape cultivation in the State. Next year the acreage in grapes in this section will be largely increased and it is only a question of a short time until a wine press large enough to make up the grapes will be a necessity. The country extending along the Southern Pacific Railway from Flatonia to Kingsbury, and of which Luling is the principal market, seems to be peculiarly adapted to the growth of the grape. Thousands of acres of rocky and sandy hillside that for years have been considered worthless will soon be covered with vines, as this class of soil seems best adapted to them.

A BILL has been introduced in Congress to transfer the Morris Island life-saving station in Charleston harbor to Sullivan's Island on the ground that the latter locality is better for service.

## LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department, on page 224.]

### Lumber Directory.

Readers of the MANUFACTURERS' RECORD who may be in the market for lumber of any description are recommended to the directory of Southern lumber manufacturers and dealers which appears among the advertising pages.

### Timber as a Crop.

[A paper presented before the American Forestry Association by B. E. Fernow.]

The object of our forestry movement is twofold, namely, to preserve favorable forest conditions where they are necessary, and to see our forest resources treated as a crop rather than as a mine or quarry from which we take what is useful and then abandon it, a waste, an unproductive spot useless to man.

The idea of a crop involves sowing and planting, cultivation and harvest, and when the crop is reaped we expect that it be reproduced and the soil bring forth another crop as good or better than the first.

Just as agriculture uses the soil systematically and under intelligent direction for the production and reproduction of agricultural crops, so does forestry use the soil systematically and under intelligent direction for the production and reproduction of wood crops.

It is not the intention in this paper to give any technical advice as to how a timber crop may be grown, but to discuss briefly some economic considerations that present themselves to him who would engage in timber-growing.

A wood crop differs from an agricultural crop in that it takes the accumulation of the growth of many years or annual accretions before the crop is useful. It is not an annual crop. Hence, the financial calculation of cost of production and profit in the harvest depends on uncertain factors of the future. Another important difference from a financial point of view is that the harvest is not determined by any natural period, like the ripening of the fruit or the end of the season of vegetation. It lies with the manager of the crop when he will harvest it, his determination depending largely on questions of financial import, the quality of material which he can market or the use to which he proposes to put the crop, and sometimes the methods by which he proposes to reproduce it. For example, if he be a consumer of wood for charcoal iron manufacture, he would cut his hardwood crop when it has attained the age of twenty or twenty-five years, expecting its reproduction from the stump again and again—a coppice system with twenty years' rotation.

If, however, he were to grow timber for the general market, he would have to wait until his crop had attained such size as will furnish marketable material, and if he expect to reproduce the crop by natural seeding he would have to allow his crop to grow until a plentiful repeated seed production is assured—he would manage his crop as a timber forest with say 70 to 100-year rotation. Or, if he had a market for box boards, he might cut his white pine at thirty years instead of waiting for its full development.

Technically, as well as financially, the most important distinction between grain or root crops and forest crops, and one which we must impress most strenuously upon our forest owners, is that a timber crop may be reproduced in acceptable form by the mere manner of harvesting the old crop. If cut under intelligent direction and with proper precautions the old crop will reproduce itself by the seed from the trees that occupied the ground, and the new crop will start with hardly any effort on the part of man except a judicious removal of the old crop. All cultivation of

the new crop to bring it to more rapid and better development and to improve its quality will then be done also by the judicious use of the axe. The axe, paradoxical as it may sound, is the preserver and cultivator of the forest—not in the hands of the lumberman, but when judiciously directed by the forester.

If we were to engage in the business of timber-growing we could start from three different positions. Either we have a soil without encumbrances, or nearly so, ready for cropping, or we have a well-stocked virgin forest ready for harvesting, or else we have a piece of woodland from which all the good timber has been culled and the poor kinds and poor timber left. Financially, I should prefer the second position every time, provided the class of timber composing the forest is of desirable kinds, for with such conditions it is a question of but short time when the forest can be brought into systematic regularly producing and reproducing condition, yielding at once interest on capital and expenditures for improvements invested. But our friends in the United States (the few that venture into this business), as a rule, seem to prefer the other two positions. They choose a poor culled piece of woodland to practice forestry on, as if by the magic of that misused word the cream that has been skimmed from the virgin forest would rise again, or else they plant on new ground, when one would think the expense of the planting, together with the patient waiting for many years ere the crop becomes marketable, would deter them from the attempt, unless other considerations prevail, such as present themselves in the forestless prairie and plains country.

That the more rational method would be to take the crop ready-made by nature and apply systematic forest management to that has seemingly not occurred to those who would try their hand at raising timber crops as a business.

The technical difficulties, to be sure, with such management are greater and more expert application of forestry knowledge than in planting on new ground, but the returns would not be waited for as long. The curtailment of the present revenue, which is necessary in order to secure not only a continuous revenue, but also a property more valuable than it came from the hand of nature, would soon be recompensed if the conditions are not entirely unfavorable.

Favorable conditions are a forest composed of timbers that are mostly merchantable, and of which one at least occurring in not too small proportion is a staple which commands a ready and unlimited market, nearness to a market and not too great difficulties in obtaining transportation within and without the forest.

Instead of doing as the lumberman would do, culling out all the good timber, usually one kind, i. e., the best, bringing it over temporary roads—as much as would promise good returns—to the mill and abandoning the property when the cream is taken because it is not worth paying taxes—this is the way in which the State of New York has become owner of nearly 1,000,000 acres of Adirondack forest—instead of thus skimming the forest we would prepare to hold and improve the property for permanent investment. This would require first the knowledge of what kind and quantities of timber our forest contains and the needs and requirements of the various timbers for their growth and reproduction; then a plan of management would have to be made, in connection with which, after mapping the tract, a system of permanent roads should be laid out—they need not be built at once, but as needed—with a view to constant use. Next should be studied how the inferior, less marketable timbers could best be utilized. These then should be cut first judiciously, with a view of reducing them in proportion to the better kinds

and of preparing a better chance for reproduction of these.

No profits may come from these manipulations, but these improvement cuttings and preparations for continuous forest management, even if they cost, are improvements that repay themselves in the end.

Then when we have brought the forest into acceptable composition and condition, and have prepared the way for a satisfactory reproduction of the best timbers, and provided means for ready transportation, then we begin to cut the latter, always with the view to the needs of each, carrying on our operations with knowledge and caution, so as to secure a new crop reseeded from the old before the latter is entirely removed.

You see that forestry does not consist in leaving trees, but, on the contrary, in cutting every one; but when the old crop is all cut, a new one more valuable than the old is growing. The lumberman's cutting is usually the very opposite. He does not, as a rule, take everything, but culls the best, leaving the undesirable, and thereby he prevents desirable reforestation, so that he leaves the forest in worse condition than it was before. We admitted that part of the harvest is, perhaps, not profitable, but the loss must be charged to the improvement and greater value in which we find our property after the operation.

You will also observe that nothing has been said about cutting annually only a certain amount of timber. It is a mistaken notion that therein consists the keynote to European forest management. To take only that which grows annually, the interest on the capital as it were, is proper financial management, but has nothing to do with forestry. The amount to be cut, as far as forestry is concerned, is only dependent upon the needs of the after-growth. Hence, it is unlike from year to year rather than like, and the very difficulty of the manager is to reconcile the financial and the forestal requirements. The same difficulty arises when the need of thinning the new crop, in order to bring it to more rapid development, is recognized, but the impossibility of marketing the inferior material forbids the operation from a financial point of view.

The question whether timber-growing is a profitable business cannot, of course, be answered as a general proposition; it can only be answered under special given conditions. But I submit that, if it can be made profitable at all in the United States at the present time, it is more readily made profitable in the manner indicated than in any other. If it is not possible to make timber-cropping profitable by buying as a start well-stocked virgin forests accessible to large markets for \$5.00 to \$10.00 per acre, land and timber, containing a full-grown crop of at least 50 per cent. of valuable forest, what should we expect from timber-planting, which can certainly not be done at less than \$10.00 to \$15.00 per acre in addition to the value of the land, and must wait for returns until the crop is ripe for the axe, compounding the expense all the way from thirty to 100 years, as the case may be?

It is to be hoped that some of our lumbermen and capitalists, in whose hands the fate of the forest property of the nation lies, may study the possibilities of managing it profitably for continuous timber crops. I am convinced that the time has arrived in many instances when this can be done without detriment to the pocket of the investor, and perhaps with an increased profit even during his lifetime.

And while the cost of management increased also, yet during the years 1830-79 the net yield of the Prussian state forests increased at the rate of 1.36 per cent. per year; in Saxony from 1850-79 at the rate of 3.02 per cent., and in the Bavarian forests at the rate of 3.14 per cent. per year.

These experiences, which are bound to

repeat themselves in our country—in fact, have already been had here and there—teach us that in calculating profits on such investments we are justified to apply a lower rate of interest than is usual. Interest charges, as we have grown richer as a nation, have begun to decline too. If government bonds, on account of their safety and the ease with which the interest is collected, bring only 4 per cent. and less, the compounding of interest charges on forest property, which is as safe and increasing in value, may be done at even a lower figure without involving financial miscalculation. In this connection I wish to call attention to some important considerations regarding the profit calculations in such a business. Not only is there no safer and, for the large capitalist, more agreeable investment to be found than timber lands; not only can he regularly and at will draw an interest, and, if he chooses, anticipate the same, taking advantage of favorable market conditions, but he will have an investment that is capable of increasing its yield partly by increased material product under management, partly by increased price for the same. In Germany the price for wood has increased during the last thirty to forty years at the rate of 1.5 to nearly 3 per cent. per annum. In Prussia the price nearly doubled in the years from 1830 to 1865, while in the forty years from 1850 to 1891 it rose 59 per cent., or from three cents to nearly five cents per cubic foot of wood of all kinds and sizes.

In conclusion, while, as we have said, the usefulness of a timber crop arrives many years from its start, it nevertheless has a value at any time, just as the colt has a value derived from the promise of its future as a mare; and as surely as virgin forest supplies are being consumed at a rate which exceeds twice the capacity of the existing area to produce, as surely will thrifty growing timber increase in value. Now is the time for the long-headed lumberman to begin to treat his timber as a crop.

### Southern Lumber Notes.

THE Builders' Supply Co., of St. Augustine, Fla., has filed an order for 100,000 feet of lumber for Armour & Co.'s new cold-storage warehouse to be built at St. Augustine.

THE steamship Cherokee, on its last week's trip to New York from Jacksonville, Fla., carried 150,000 feet of lumber and 2000 bundles of shingles.

THE steamship Algonquin sailed from Jacksonville, Fla., for New York last week with 300,000 feet of lumber, 2000 bundles of shingles, etc.

THE Leake barrel-head factory at Collierville, Tenn., has commenced operations, one of the first orders booked being for 25,000 oak barrel heads to be furnished a Memphis firm.

THE Interstate Lumber Co., of New Lewisville, Ark., has been placed in the hands of receivers upon application by the Interstate National Bank of Texarkana, Texas. Mr. Henry Moore has been appointed receiver, filed his bond and taken charge of the property. The liabilities are estimated at \$25,000, while the assets are \$40,000.

THE Trinity County Lumber Co. has closed down its plant at Groveton, Texas, owing to a strike by the mill hands. The employees have resolved not to work under \$1.50 a day, nor allow any others to do so.

A NOTICEABLE large cut of a single circular saw mill was that of Messrs. M. T. Jones & Co.'s plant at Lake Charles, La., recently. In eleven hours the mill cut 191,323 feet of lumber. The saw was fifty-four inches in diameter, No. 6 gage, with eighty teeth.



## LUMBER MARKET REVIEWS.

## Baltimore.

OFFICE MANUFACTURERS' RECORD,  
BALTIMORE, October 26.

Throughout the local lumber market there is a quiet tone prevalent, and the general situation is without much snap or vigor. The various commission-houses and manufacturers look upon the market as quite irregular, and under the present money pressure they do not look for any activity. As to prices, they are more or less nominal in certain cases, while for certain grades and dimensions of stuff there is a regular inquiry, and for such material values are a shade better. Receipts of air-dried yellow pine are more liberal this week, and there is a good inquiry for box lumber, which shows a slight advance. Kiln-dried North Carolina yellow pine continues in fair demand, with the list of values unchanged. Cypress is dull and steady. White pine is in fair supply, with prices unchanged. There is very little inquiry for hardwoods, and stocks in some cases are more or less broken, while values are firm. Shingles are in good supply, with the demand somewhat better and prices steady. Planing mills report a fair supply of orders and box factories are generally running on full time. The following table represents the prices current at this date:

VIRGINIA AND NORTH CAROLINA PINE.	
5-4x10 No. 2, kiln dried.....	\$16 25@
5-4x12 No. 2, " " " " " " " "	17 75@
4-4x10 No. 1, " " " " " " " "	19 75@
4-4x12 No. 1, " " " " " " " "	20 75@
4-4 narrow edge, No. 1, kiln dried.....	17 25@
4-4 wide edge, " " " " " " " "	21 75@
6-4x8, 10 and 12, " " " " " " " "	23 25@
4-4 No. 1 edge flooring, air dried.....	16 00@ 17 00
4-4 No. 2 edge flooring, " " " " " "	13 00@ 14 00
4-4 No. 1 12-inch stock, " " " " " "	16 00@ 17 00
4-4 No. 2 " " " " " " " "	13 00@ 14 00
4-4 edge box or rough wide " " " " " "	9 00@ 9 50
4-4 " " " " " " " " " " " " " " " " " "	8 50@ 9 00
4-4 " " " " " " " " " " " " " " " " " "	7 50@ 8 00
4-4x12 " " " " " " " " " " " " " " " " " "	10 00@ 11 00
3/4 narrow edge, " " " " " " " " " " " " " "	7 25@ 8 25
3/4 all widths, " " " " " " " " " " " " " "	8 50@ 9 50
3/4 10x16 wide, " " " " " " " " " " " " " "	8 25@ 8 75
Small joists, 2 1/2-12, 14 and 16 long.	8 00@ 9 50
Large joists, 3-16 long and up.....	10 00@ 11 00
Scantling, 2x3-16 and up.....	10 00@ 11 00

## WHITE PINE.

1st and 2d clear, 4-4, 5-4, 6-4 and 8-4.	48 50@ 51 50
3d clear, 4-4, 5-4, 6-4 and 8-4.....	43 50@ 44 50
Good edge culls.....	15 50@ 16 50
Good stock.....	17 50@ 18 50

## CYPRESS.

4-4x6, No. 1.....	19 00@ 20 00
4-4x6, No. 2.....	14 50@ 16 50
4-4x6, 16 feet, fencing.....	12 50@ 14 00
4-4x6, rough.....	9 00@ 9 50
4-4 rough edge.....	9 00@ 9 50
4-4 edge, No. 1.....	18 00@ 20 00
4-4 " " No. 2.....	13 50@ 14 50

## HARDWOODS.

5-8, Nos. 1 and 2.....	75 00@ 100 00
4-4, Nos. 1 and 2.....	90 00@ 100 00
5-4, 6-4 and 8-4.....	95 00@ 110 00
Newell stuff, clear of heart.....	125 00@ 130 00
Culls.....	30 00@ 35 00

## Oak.

Cabinet, white and red, plain-sawn and good, 1 and 2, 8 inches and up, 12 to 16 feet long, 4-4.....	35 00@ 40 00
Quartered white, 1 and 2 quality, all figured, 6 inches and up wide, 4-4.....	50 00@ 55 00
Culls.....	10 00@ 15 00

## Poplar.

Nos. 1 and 2, 5-8.....	22 00@ 24 00
" " " " 4-4.....	27 50@ 30 50
Nos. 5, 6 and 8.....	30 00@ 32 50
Culls.....	11 50@ 13 50

## SHINGLES.

Cypress, No. 1 hearts, sawed, 6x20.....	7 50@ 7 75
No. 1 saps, sawed, 6x20.....	5 50@ 6 00
No. 1 hearts, shaved, 6x20.....	6 50@ 7 00
No. 1 saps, shaved, 6x20.....	—@ 5 00

## LATHS.

White pine.....	3 20@ 3 25
Spruce.....	2 50@ 2 55
Cypress.....	2 50@ 2 55

## Norfolk.

[From our own Correspondent.]

NORFOLK, VA., October 24.

It looks at present as if the lumber market would show considerable activity during the fall and winter, as the demand has improved considerably during this month. There has been a better inquiry for kiln-dried yellow pine lumber and several large orders have been received during the past week. The amount of tonnage in port is a good indication of the tone of trade here and a number of vessels cleared during the week for Northern ports. Rates are firmer for lumber vessels, as there are not so many offering, and charters have been made for New York at \$2.25 with free wharfage. The movement in air-dried lumber is mod-

erately active and prices are gradually improving, while receipts are ample for the demand at the moment. Dressed lumber is doing fairly well, and the planing mills and other wood industries are generally fully employed and report orders as coming in more freely at better prices. Many of the mills in the section of the State adjacent to this city are resuming operations. The Tunis Lumber Co. has its extensive plant in fine working order and has resumed operations. Mr. W. T. Sears has purchased the saw mill of the Whaley & Miner Lumber Co. at Delaware Station, on the Seaboard Railroad. The plant will shortly be put in active operation.

## Charleston.

[From our own Correspondent.]

CHARLESTON, S. C., October 23.

The lumber market is moderately active and there is considerable demand from Northern ports, as well as for local building purposes. In the saw-mill section adjacent to this city the mills are generally running on full time and have a fair amount of orders. Prices continue steady under a moderate demand. Merchantable lumber is quoted \$14.00 to \$16.00 for city-sawn and \$12.00 to \$14.00 for railroad; square and round timber, \$9.00 to \$13.00 for railroad and \$8.00 to \$11.00 for raft; dock timber, \$4.50 to \$6.50, and shipping, \$8.50 to \$10.50. Shingles are steady, with a good demand at \$5.00 to \$7.00. The clearances during the week were 6000 feet of lumber per steamer and 450,000 feet per schooner Anna L. Ebner, for New York. The Carolina & Georgia Lumber Co. is loading several vessels for Northern ports. The schooners Rillie S. Derby and Anna V. Lamson are loading lumber for Philadelphia. The schooner Clara E. Bergen, with a cargo of lumber, is in the stream and ready to sail for New York. The schooner Nellie W. Hewlett is loading lumber for New York.

## Savannah.

[From our own Correspondent.]

SAVANNAH, GA., October 23.

The market in lumber and timber has been quiet and steady during the week and the volume of business lighter than usual. There is, however, a better prospect in sight for lumber, and the demand from Northern ports and from South America is more decided in character. Reports are favorable from the saw-mill sections of the interior of the State, and several mills are reported as starting up during the past week. The tone for choice grades of dimension stuff is firm and prices show a hardening tendency for this class of material. The quotations are unchanged at \$11.25 for easy sizes, \$12.00 to \$16.50 for ordinary sizes, \$14.50 to \$22.50 for flooring boards and \$16.50 to \$25.00 for shipstuffs. The clearances for the week were 1,260,344 feet of lumber for New York, 334,782 feet for Portland, Me., and 22,729 feet shipped by the Georgia Lumber Co. to Rio Grande du Sul—total 1,617,855 feet. Lumber freights are steady at ruling rates. Foreign business is more or less nominal in character. The rates from this and nearby ports in Georgia are quoted at \$4.25 to \$5.25 for a range including Baltimore and Portland, Me. Railroad ties are quoted ten cents, basis forty-four feet. To the West Indies and Windward rates are nominal, to Rosario \$14.00 to \$15.50, to Buenos Ayres or Montevideo \$12.00 to \$12.50 and to Rio Janeiro \$13.50. Steamer rates are steady at \$7.00 to New York and Philadelphia, to Boston \$8.00 and to Baltimore \$5.50.

## Mobile.

[From our own Correspondent.]

MOBILE, ALA., October 23.

The lumber and timber market is getting into better shape, and the damages caused by the recent storm have been repaired. The outlook, however, shows few signs of

any decided improvement, and the amount of business transacted is exceedingly light, there being no clearances reported for the week. Stocks in the European market continue ample for the present demand, and this, coupled with a tight money market at home, causes the present inactivity. On the other hand, there is considerable improvement in the lumber business, and during the week the shipments aggregated 1,938,607 feet, divided as follows: New York, 558,000 feet; Carthage, 431,935 feet; Buenos Ayres, 501,172 feet, Cuba, 350,000 feet, and Boca del Toro, 15,500 feet. The total shipments since September 1 aggregate 6,519,712 feet, against 7,628,948 feet for the corresponding period last year. Prices for all desirable grades and dimensions of lumber are steady and stocks in no case excessive. Mills that have been closed down for some weeks are gradually resuming, and it is thought that the extreme pressure in money matters is over, in which case an active season is expected in this branch of the industry. The demand for building purposes is more pronounced, and from the number of transfers in real estate and contracts let a good demand is expected in this quarter for the better classes of lumber. Freights continue unchanged, and the offerings of handy-sized tonnage are free; to the West Indies \$6.00 to \$7.00 per thousand, coastwise \$6.00 to \$6.50, Rio Janeiro \$12.00 and Mexico \$7.50 to \$8.50. Steamer rates to the United Kingdom are quoted at £5 10s. to £5 12s. 6d.

## New Orleans.

[From our own Correspondent.]

NEW ORLEANS, LA., October 24.

There has been considerable business during the past week in the lumber and building industries of this port, and the general outlook is considered more favorable for a larger trade in the near future. The lumber business during the summer has been dull in this section, as at all primary points, but at present there is every prospect of an active trade during this winter. The mills along the several lines of railroad terminating here are going into operation by degrees and orders are now coming in more freely. The number of new woodworking industries that have been established this year along the line of the Illinois Central and other roads will also help the lumber business. Prices are generally very steady and there is a growing demand for export. The building trade this week has been quiet, but, as previously stated, there is plenty of business outlined to engage all our mechanics for the winter. The dealings at the exchanges this week were quite light. There was a number of outside transactions, and the total of transfers secured is 20 per cent. larger than the previous week. The first large real-estate deal of the season was consummated on the 19th inst. by Fitzpatrick & Smith when they sold M. B. Spelman, general agent for the Illinois Central Railroad, fourteen lots adjoining the railroad depot grounds for \$37,000. The contractors for the new Tulane University buildings on St. Charles avenue have been busy this week preparing foundation work. The following table represents the receipts of building material as reported by the secretary of the Mechanics, Dealers and Lumbermen's Exchange:

Material.	This week.	Sept. 1 to Oct. 20.	
		1893-94.	1892-93.
Lumber.....	1,443,500	13,570,218	18,367,609
Shingles.....	96,500	638,000	905,000
Laths.....	25,000	266,000	1,119,300
Brick.....	252,000	3,774,500	6,274,000
Sand.....	9,400	102,530	112,195
Lime.....	2,500	22,050	21,425
Cement.....	9,439	31,776	17,100
Fire-brick.....	29,000	123,300	94,000
Oak staves.....	67,200	1,182,789	6,555,000
Cypress staves.....	90,000	1,173,941	739,900

## Beaumont.

BEAUMONT, TEXAS, October 23.

The situation throughout the lumber market in this section has not improved and the outlook may be regarded as less encouraging. The long dry spell throughout the State has injured the crops, and the continuance of the financial troubles have a tendency to restrict trade in all branches of this industry. During the week there has been some demand from railroads, and orders have been placed with the mills at this point, with a few orders from dealers. Buyers, however, are only in the market when necessity demands it and to fill up the assortment in their yards. Notwithstanding the present apathy, there is considerable activity at the saw-mill points of this State and Louisiana adjacent to Beaumont. The Long Manufacturing Co. have during the summer reduced their stock of shingles from 20,000,000 on hand in May last to 3,000,000, and sales are being made at steady figures. This company, it is said, will not resume until the money markets gets in better shape. At Orange the D. R. Wingate planing mill started up last week and the Litcher & Moore Lumber Co. resumed operations at its mill. The Beaumont Lumber Co., Texas Tram & Lumber Co. and Nono Mills Co. are loading a schooner for Havana, Cuba. This shipment will probably be followed by others for the same port.

## Agricultural Development of Southwest Louisiana.

[From the Crowley Signal.]

Ten years ago the prevailing impression was that southwestern Louisiana was unsuited for any class of farming, and not until some of the more venturesome settlers located on the prairies and demonstrated the adaptability of the soil to rice-growing was the land considered worth the price at which it was held by the State and government. The few intervening years have proven it to be without doubt the best rice region in the world, producing that staple cheaper than anywhere else. But to make this a desirable country, as well as a more prosperous one, we must have a diversity of crops, the mere discussion of which has again brought to the surface the skeptical, who claim our soil is adapted to nothing save rice, and that to attempt diversification must of necessity prove suicidal to the farmer. Such talk is all bosh and should have no weight, coming as it does from the same class who only a few years ago claimed that by no possible means could the farmer produce sufficient vegetation on our prairie lands to keep the wolf from the door. That such argument is without substantiation has been demonstrated by those farmers who have the past season or two been experimenting in the planting of sugar-cane, and of which they are making an unquestionable success, proving the adaptability of our soil to its culture.

In speaking of the possibilities of the soil of southwestern Louisiana, maintaining a high value for it for cane culture, a Western farmer who has lived in Louisiana a few years has the following to say of the possibilities of our soil in a recent issue of the *American*: "A crop of onions may be planted the latter part of October or first of November and harvested in April. On this same land may be planted rows of melons the latter part of February, which will not at all interfere with the onions. When the onions are gathered the melons may be plowed; then, before the ground is covered with the vines, peas may be sown broadcast and chopped in with the hoe. They will not interfere with the melon crop, which will be sold in June. Then, as the melon vines die out the peas soon take the land, and not only bear an abundant crop which can be harvested in September, but will enrich the soil and be ready for another crop of onions in November."

# CONSTRUCTION DEPARTMENT.

**WE PUBLISH**, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

\* Means machinery is wanted, particulars of which will be found under the head of "Machinery Wanted."

✉ In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the MANUFACTURERS' RECORD.

## ALABAMA.

**Birmingham—Broom Factory.**—The McMillan-Lee Grocery Co. will start a broom factory.

**Piedmont—Woodworking Factory.**—Nathan Alexander has taken charge of the Piedmont Bentwood Works and resumed operations.

**Society Hill—Saw Mill.**—L. L. Torbert will at once make arrangements to rebuild his recently-burned saw mill.\*

## ARKANSAS.

**Fort Smith—Development.**—The Fort Smith Development Co. has been incorporated with E. E. Bryant, president; J. E. Marshall, vice-president; M. D. Hunton, secretary, and J. R. McBride, treasurer; capital stock \$10,000.

**Stephens—Cotton Gin.**—J. H. Medlock will rebuild his burned cotton gin.

## FLORIDA.

**Jacksonville—City Improvements.**—The city has voted to issue the \$1,000,000 worth of general improvement bonds recently mentioned.

**Pittston—Phosphate Mines.**—Thos. W. Pitts & Co., miners of hard-rock phosphate, will put in an electric-light plant, conveyors, etc.\*

**St. Augustine—Cold-storage Plant.**—Armour & Co., of Chicago, Ill., will erect a cold-storage warehouse in St. Augustine at a cost of \$3000. Geo. F. Jackson is their local representative.

## GEORGIA.

**Darien—Turpentine Still.**—A. Sinclair will probably rebuild his turpentine still noted as burned.

**Gainesville—Lumber Mills.**—W. A. Waterhouse & Co., of Boston, Mass., intend to erect lumber mills on a tract of timber land near Gainesville, and which they have purchased. Machinery has been secured.

**Macon—Lumber Company.**—Thomas C. Hendrix, W. J. Beeland and R. H. Smaling have incorporated the Macon Sash, Door & Lumber Co. to deal in all kinds of lumber, etc. The capital stock is \$50,000.

**Macon—Kindling-wood Mill.**—The Electric Kindling Wood Co. has been formed and will establish a kindling-wood factory to employ fifty hands and will ship three carloads weekly. M. O'Grady is president and general manager; M. Shelley, of Chicago, vice-president, and E. J. Murphy, Jr., of Atlanta, secretary and treasurer.

**Macon—Kindling-wood Mill.**—The Fat Pine Kindling Co. has been organized by R. L. D. R. and W. S. Davis and will establish a kindling-wood mill, commencing work with twenty-five hands. R. L. Davis is general manager. The company already has a contract with Ohio parties to furnish \$24,000 worth of kindling.

**Macon—Carriage Factory.**—Mulkey & Neeley, of Barnesville, will establish a carriage factory in Macon.

**Macon—Paper-box Factory.**—The Empire Printing Co., of Atlanta, will investigate Macon's commercial advantages with a view of locating a paper-box factory.

**Woodstock—Cotton Gin.**—Probably Cicero Dobbs will rebuild his cotton gin noted as burned.

## KENTUCKY.

**Lexington—Ice Factory.**—The Consumers' Ice Co. has decided to erect a factory, and will do so as soon as site can be obtained.

**Louisville—Redrying Plant.**—The Harry Weiss-

singer Tobacco Co. has just completed a new building, which is being equipped with the Mayo tobacco-dryer system.

## LOUISIANA.

**New Orleans—Iron Foundry.**—The Mims Iron Works Co. will rebuild its pattern shop noted as burned.

**Shreveport—Plow Works.**—The Hancock Disc Plow Co. has been incorporated for the purpose of manufacturing and selling the Hancock disc plow and other agricultural implements. M. T. Hancock is president; J. M. Hollingsworth, vice-president; W. F. Taylor, treasurer, and T. C. Barrett, secretary; capital stock \$100,000.

## MARYLAND.

**Baltimore—Publishing, etc.**—The Telegram Co. has been incorporated for publishing and printing purposes with a capital stock of \$10,000. The incorporators are William H. Edmonds, Richard H. Edmonds, Isaac S. Field, James Young and Henry E. Hines.

**Washington, D. C.—Brewery.**—The Christian Heurich Brewing Co. is now having plans prepared by C. F. Terney for the new brewery recently decided upon. The main building is to be seven stories high. The entire plant will be equipped with the latest improved machinery for brewing, manufacturing ice and supplying electric lights, and it will cost about \$350,000.

**Yellow Springs—Coal Deposits.**—In sinking a well on the farm of D. J. Young, near Yellow Springs, a vein of soft coal was struck last week.

## MISSISSIPPI.

**Durant—Wagon Works.**—The Love Wagon Works, reported as burned, will be rebuilt.

## MISSOURI.

**Clinton—Water Works.**—W. L. Crow, E. H. Matthews, F. E. Potter and others have incorporated the Home Water Works Co. with a capital stock of \$28,000.

**Joplin—Zinc Works.**—The Empire Zinc Co. has lately started the manufacture of oxide of zinc.

**Kansas City—Grain.**—Hanson Gregg, of Kansas City; John Hand, Anna F. Gregg, of St. Joseph, have incorporated the Hanson Gregg Grain Co. to deal in grain and operate mills and elevators. The capital stock is \$10,000.

**Kansas City—Shoe Company.**—Joseph H. Hocker, J. M. Stern and Mayer Stern have incorporated the Stern Shoe Co. with a capital stock of \$20,000.

**Sedalia—Publishing.**—The J. West Goodwin Publishing Co. has been incorporated with a capital stock of \$6000.

**St. Joseph—Manufacturing.**—J. W. D. Hall, J. T. Thomas and L. M. Roscoe have incorporated the J. W. D. Hall Wire Cornice & Manufacturing Co. with a capital stock of \$7000.

**St. Louis—Distillery.**—August Kahmann, Alvina Brueggemann, August F. George H. and Herman H. Brueggemann have incorporated the Midland Distillery Co. with a capital stock of \$10,000, fully paid up.

**St. Louis—Increase Capital.**—The Crown Vinegar & Spice Co. has increased its capital stock from \$10,000 to \$15,000.

**St. Louis—Mercantile.**—Annie Kamphafner, C. H. Banks, J. C. Banks and Herman Kamphafner have incorporated the Favorite Grocery Co. with a capital of \$2000.

**St. Louis—Publishing.**—The Confectioners & Bakers' Publishing Co. has been chartered with a capital stock of \$6000.

**St. Louis—Coal Company.**—Henry Snak, Jr., John Sanders and Charles Stuart have incorporated the Grand Avenue Coal & Fuel Co. with a capital stock of \$8000.

## NORTH CAROLINA.

**Charlotte—Machinery, etc.**—W. F. Dowd has purchased the entire machinery and supply business of Brem & Dowd and will continue same; will also handle plumbers' supplies, agricultural implements, etc.\*

**Charlotte—Ice Factory.**—E. R. Conger and A. J. Hagood, of Columbia, S. C., contemplate building an ice factory in Charlotte.

**Mooresville—Granite Quarry.**—The Charlotte Granite Co. has been incorporated with a capital stock of \$50,000. The company owns a quarry near Mooresville.

## SOUTH CAROLINA.

**Blacksburg—Mica Mill.**—The Carolina Pulverizing Co. has adopted the water process for pulverizing mica and added some new machinery.

**Darlington—Brick and Tile Works.**—A charter has been granted to the Darlington Brick Co., its

purpose being to manufacture brick, tiling and similar goods. The incorporators are C. S. McCullough, J. J. Ward and George H. Edwards, and the capital stock is \$50,000.

**Greenwood—Cotton Ginnery.**—The Greenwood Cotton Oil Mill Co. will rebuild its burned cotton ginnery.

## TENNESSEE.

**Athens—Gold Mines.**—It is reported that gold has been discovered in paying quantities in East Tennessee thirty miles east of Athens. It is also said that Cincinnati parties will develop a mine at once.

**Chattanooga—Electric-light Plant.**—The Mountain City Mills contemplate putting in an electric-light plant.

**Cumberland Gap—Grist and Planing Mill.**—Kesterson & Vincent will start a grist mill and planing mill.

**Johnson City—Foundry and Machine Shop.**—The Valley Foundry & Machine Co. is about to start a foundry and machine works.\*

**Knoxville—Engine and Pump Works.**—The Knoxville Engine and Pump Works has completed one large building for its plant, and will proceed with erecting a large foundry at once.

**Memphis—Furniture Company.**—The Stewart Furniture Co. has filed its charter, the following being the incorporators: J. A. Stewart, Samuel Newell, R. E. Stewart, J. P. Stewart and Jesse Kilbrough.

**Nashville—Cotton Compress.**—The Tennessee River Compress Co. of Hamilton County has filed its charter with the secretary of state. The incorporators are Jno. Black, F. T. Hardwick, P. B. Trammel, R. J. Peak, J. C. Norton, S. B. Falke and D. Berkatzner.

**Sweetwater—Electric-light Plant.**—The Sweetwater Mill Co. contemplates putting in an electric-light plant.

## TEXAS.

**Bastrop—Cotton Gin.**—The Green Cotton Gin, noted as burned, may be rebuilt.

**Brenham—Cotton Gin.**—Wm. Sommerfield may rebuild his burned cotton gin.

**Cleburne—Ice Factory.**—The Cleburne Ice & Cold Storage Co. will rebuild its ice factory reported as burned.

**Dallas—Stamping Works.**—The Dallas Stamping Works will start a new plant to replace its burned one.

**Dayton—Rice Mill.**—J. W. Davis will build a rice mill.

**Devers—Rice Mill.**—Mr. Fairchild has built a rice mill.

**Geneva—Cotton Gin.**—Joseph Haygood will probably rebuild his cotton gin burned near Geneva.

**Georgetown—Electric-light Plant.**—H. V. Coler & Co., of New York, who have bought the water works, intend to put in a plant for electric lighting.

**Rancho—Cotton Gin.**—R. A. Le Baren may rebuild his burned cotton gin.

**Richmond—Ginnery.**—Bassett & Winston may rebuild their cotton ginnery noted as burned.

**San Antonio—Planing Mill.**—Edward Cade is adding some new machinery to his planing mill.

**San Antonio—Iron Works.**—The Collins Manufacturing Co. has expended \$10,000 for additional machinery for foundry and architectural iron works, and will expend \$10,000 more at once.

**Texarkana—Lumber Mills.**—T. S. Temple, Wm. Temple, J. M. Park, H. C. Hynson, E. Estabrook and E. T. Lane have incorporated the Southern Pine Lumber Co. with a capital stock of \$50,000.

**Wharton—Cotton Gin.**—W. T. Taylor & Bro. will rebuild their burned cotton gin.

**Yorktown—Cotton Gin.**—Mr. Striebler may rebuild his burned cotton gin.

**Yorkville—Cotton Gin.**—Mr. Crawford may rebuild his burned cotton gin.

## VIRGINIA.

**Gloucester C. H.—Barrel Factory.**—H. Taliaferro and William Collier have started the manufacture of barrels.

**Norfolk—Cultivation.**—The J. D. Armstrong Co. has been chartered with a capital stock of not less than \$5000 nor more than \$25,000. D. D. Wright, of Boston, is president; H. E. Willis, of Boston, vice-president, and J. D. Armstrong, of Norfolk, secretary and treasurer. Their purpose is to cultivate and deal in oysters.

**Richmond—Iron Bridge.**—The Richmond Railway & Electric Co. will construct an iron single span truss bridge from Richmond to Brown's Island.

**Roanoke—Cemetery.**—A charter has been granted to the Riverside Cemetery Co. with a capital stock of \$20,000.

## WEST VIRGINIA.

**Hulings—Lumber Mills.**—A charter has been issued to the Columbia Lumber Co. with a capital stock limited to \$25,000.

**Huntington—Chair Factory.**—A large chair factory, now located in Ohio, employing 400 men, will likely be removed to Huntington. The Chamber of Commerce is negotiating for the plant.

**Logan C. H.—Coal and Lumber.**—Henry King and others, of New York, have incorporated the Logan Coal & Lumber Co. with a capital stock of \$1000 and privilege of increasing to \$1,000,000.

**Moundsville—Saw Mill.**—Gatts & Gray intend to erect a saw mill and will commence work on same at once.

**Sistersville—Oil and Gas Wells.**—A charter has been issued to the Chicago Oil & Gas Co. with a capital authorized at \$50,000.

**Wheeling—Gas and Oil Wells.**—John Waterhouse, C. R. Dersel, J. C. Barkley, George E. House and F. G. Caldwell have incorporated the Bloom Oil & Gas Co. with a capital stock authorized of \$500,000.

**Wheeling.**—The certificate of incorporation of the Home Dressed Beef Co. has been filed for record. Albert M. Schenck, G. H. Medick, Henry Dannenburg, Jr., and others are the incorporators.

**Wheeling—Aluminum Works.**—It is said that R. H. Cochran, of Toledo, Ohio, contemplates establishing aluminum works in Wheeling.

## BURNED.

**Alma, Ark.**—M. F. Locke's cotton gin, valued at \$10,000; no insurance.

**Bastrop, Texas.**—Green's cotton gin.

**Brandon, Texas.**—Spaulding & White's cotton gin; loss \$10,000.

**Brenham, Texas.**—Wm. Sommerfield's cotton gin, near Brenham.

**Childersburg, Ala.**—W. T. Clayton's cotton gin.

**Cleburne, Texas.**—The Cleburne Ice & Cold Storage Co.'s plant; loss \$12,000.

**Clinton, Ky.**—The Davis Hotel and stores of J. L. Moss, Johnson and Harpel; loss estimate \$40,000.

**Dallas, Texas.**—The Dallas Stamping Works; loss \$18,000.

**Darien, Ga.**—A. Sinclair's turpentine still; loss \$4000.

**Durant, Miss.**—The Love Wagon Works.

**Eastman, Ga.**—The Alliance Cotton Warehouse; loss \$12,000.

**Eureka, Texas.**—Mr. Webb's cotton gin, near Eureka.

**Ford, Texas.**—S. P. White's cotton gin.

**Fort Worth, Texas.**—The Pender Building; loss estimate \$15,000.

**Geneva, Texas.**—James Haygood's cotton gin.

**Gonzales, Texas.**—W. E. Jones's hotel; loss \$800.

**Greenwood, S. C.**—The Greenwood Cotton Oil Mill Co.'s cotton ginnery; loss \$7000.

**Hartsfield, Ga.**—J. L. & J. Hartsfield's grist mill and cotton gin.

**Hillsboro, N. C.**—Residences of John W. Graham, near Hillsboro; loss estimate \$15,000.

**King City, Mo.**—The First National Bank, the Democrat and the Chronicle newspaper offices, T. J. Hasty & Son's, Meyer & Levy's and James Spence's stores; loss estimate \$80,000.

**Lampasas, Texas.**—The Globe Hotel.

**La Nana, Texas.**—The La Nana Lumber Co.'s saw mill; loss \$10,000.

**Little Rock, Ark.**—H. Weinstock's store; loss estimate \$5000.

**Marion, S. C.**—T. C. Moody's cotton gin, near Marion.

**Mt. Vernon, Ga.**—Depot of the Savannah, Americus & Montgomery Railway.

**New Orleans, La.**—The Mims Iron Works Co.'s pattern shop.

**Owenton, Ky.**—The Exchange Hotel and several stores; loss estimate \$50,000.

**Palm Beach, Fla.**—The Coconut Grove Hotel.

**Rancho, Texas.**—R. A. Le Baren's cotton gin.

**Richmond, Texas.**—Bassett & Winston's cotton ginnery; loss \$10,000.

**San Antonio, Texas.**—W. E. Sanders's Excelsior Laundry.

**Scranton, Miss.**—The Solomon & Miller saw mill, near Scranton; loss \$5000.

**Simsboro, La.**—The Murphy Hotel; loss estimate \$3000.

**Stephens, Ark.**—J. H. Medlock's cotton gin.

**Union Church, Miss.**—A. M. McCallum's cotton gin.



**Wharton, Texas.**—W. T. Taylor & Bro.'s cotton gin; loss \$3,000.

**Woodstock, Ga.**—Cicero Dobbs's cotton gin, near Woodstock.

**Yorktown, Texas.**—Mr. Shrieber's cotton gin.

**Yorkville, S. C.**—Mr. Crawford's cotton gin, near Yorkville.

## BUILDING NOTES.

**Atlanta, Ga.—Tower.**—Bruce & Morgan have prepared plans for a memorial tower to mark the progress of the city. The idea of erecting it is being considered by a special committee of citizens.

**Baltimore, Md.—School.**—The congregation of the Holy Cross Catholic Church will erect a brick schoolhouse at the corner of West and William streets.

**Baltimore, Md.—Church.**—The congregation of St. Peter's English Lutheran Church is raising funds to erect a new edifice. Address Rev. E. L. S. Tressel.

**Baltimore, Md.—Church.**—The congregation of Ebenezer African Methodist Church has begun the erection of a new edifice. F. H. Calloway is contractor.

**Baltimore, Md.—Dwellings.**—W. F. Flagg has received permission to build eight two-story brick dwellings on Barclay street near North avenue.

**Barren Creek Springs, Md.—Hotel Improvement.**—It is stated that the Barren Creek Springs Hotel will be enlarged and converted into a health resort. Thomas Bacon is interested.

**Canton, Texas.—Jail.**—Bids are wanted for the erection of a brick jail with steel cells to cost \$10,000. W. C. Dodson, Waco, or T. R. Yantis, at Canton, may be addressed; bids opened November 6.

**Charlotte, N. C.—Church.**—The congregation of Ebenezer Baptist Church will erect a new edifice. Work has begun on the foundation.

**Homerville, Ga.—Courthouse.**—J. R. Dickerson, Saussy, Ga., will give information regarding a courthouse to be erected at Homerville to cost \$20,000. Contract will be let November 10.

**Houston, Texas.—High School.**—The high school to be erected at Houston to cost \$75,000 is to be three stories high with basement. It will contain class and recitation rooms and a hall to seat 400 persons. Address Superintendent Sutton.

**Jacksonville, Fla.—City Buildings.**—The city has decided to issue \$100,000 of bonds to construct a city hall and other buildings. Address the mayor.

**Knoxville, Tenn.—Hotel.**—An addition to the Hattie House will be made to cost \$27,000. It will be of brick. F. McNulty will give information.

**Laurel, Md.—Cottages.**—Frank N. Hobbs will erect a series of ten frame cottages in north Laurel with electric lights, etc., to cost in all \$28,000.

**Louisville, Ky.—Business Block.**—It is stated that Kleinhaus & Simonson will build a business block to contain stores on the ground floor and office apartments above.

**Louisville, Ky.—Business Block.**—The business block to be erected by H. Weissinger will be four stories high and contain three large store apartments. Contract is let. Address McDonald Bros., architects.

**Millersville, Ga.—Asylum.**—The board of trustees of the State Lunatic Asylum have decided to ask an appropriation of \$100,000 to build an asylum addition for colored patients.

**Mobile, Ala.—University.**—The colored people of Mobile are considering a proposition of the Freedman's Aid Association to establish a university for colored students in Mobile to cost \$150,000. George W. Lovejoy is interested.

**Montezuma, Ga.—Courthouse.**—The Macon county board of revenues has let the contract for building a courthouse to cost \$20,000.

**Roanoke, Va.—Church.**—The congregation of St. Paul's Church will erect an edifice 60x40 feet in size. Work has begun on it. Rev. Lewis Reiter is pastor.

**Rock Hill, S. C.—College.**—No bids have as yet been received for erecting the industrial college, which is to cost \$60,000. Address the mayor.

**Salem, Va.—Orphanage.**—An additional building will be constructed for the Baptist Orphanage. Address the superintendent.

**Tallahassee, Fla.—College Addition.**—An addition to the State Normal College will be made at a cost of \$59,450. Address Gilmore & Davis, contractors.

**Washington, D. C.—Hotel Addition.**—Pelz & Carley, architects, have prepared plans for an addition to the Hotel Richmond to cost \$200,000. It will contain 200 rooms and will be constructed of brick and brownstone. It is to be nine stories high.

**Washington, D. C.—Apartment-house.**—Architect T. F. Schneider is preparing plans for a 10-story

apartment-house to be built on Q street near 16th. It is to have a frontage of 120 feet and a depth of 100, with an open court in the centre. It will be of Grecian architecture, and is to be constructed of buff brick and stone. Cost is estimated at \$250,000.

**Washington, D. C.—Dwellings.**—Edward W. Bryn will erect three dwellings with brownstone fronts to be 25x65 feet in size and to cost \$17,500 each. His address is the Pacific Building.

**Washington, D. C.—Theatre.**—It is stated that Architect Bruce Gray has prepared plans for the proposed theatre building which a New York syndicate may build.

**Washington, D. C.—University Addition.**—The addition to the Howard University is to be a one-story building 80x108 feet. It will be built of Indiana limestone and cost \$40,000. Address secretary of the faculty.

**Washington, D. C.—Lighthouse.**—The lighthouse board may be addressed regarding a lighthouse which it will erect on Oak island at the mouth of Cape Fear river, N. C.

**Washington, D. C.—Storehouse.**—Littlefield, Alvard & Co. will erect a fire-proof storehouse on E street to cost \$10,000. It will be 50x150 feet and be strengthened by iron beams and columns.

**Waycross, Ga.—Dwellings.**—H. D. Rowbotham has prepared plans for a rectory, also a parsonage, to be erected in Waycross. They will cost about \$4,000 each.

## RAILROAD CONSTRUCTION.

### Railroads.

**Baltimore, Md.**—W. H. O'Connell, of Baltimore, and Wallace Stebbens, of Relay, Md., are among the incorporators of the West Baltimore Passenger Railway Co., which has projected an electric line from Baltimore to Ellicott City and through land of the West Baltimore Improvement Co.

**Baltimore, Md.**—The Wallbrook, Gwynnokin & Powhatan Railway Co. is considering a project for changing its motive power to electricity. The line extends from the western suburbs of the city to Powhatan. It is about four miles in length.

**Cairo, W. Va.**—The Cairo & Kanawha Valley is building an addition three miles in length to the Ritchie coal mines. Its present road is twelve miles long and penetrates a section of timber land. H. S. Wilson, of Parkersburg, is president.

**Charleston, S. C.**—It is reported that arrangements are being made to secure right of way in North Carolina and Tennessee to complete the Ohio River & Charleston, formerly the Charleston, Cincinnati & Chicago. General Manager Samuel Hunt is interested.

**Galveston, Texas.**—It is reported that the Missouri Valley Bridge & Iron Co. is interested in the project to construct a steel railroad bridge across Galveston bay, and that Maj. H. C. Ripley is one of the projectors.

**Houston, Texas.**—About one mile of the La Porte & Houston road has been finished. It is intended to complete the line between Harrisburg and La Porte by November 15. T. W. Lee and J. H. Tennant, of Harrisburg, are interested.

**Hyattsville, Md.**—An engineering corps reported as sent out by the Baltimore Traction Co. is making surveys between Laurel and Rives Station, on the District of Columbia line.

**Lenoir, N. C.**—Eight miles of the Caldwell & Northern road have been built from Lenoir and two miles are ready for rails. It is expected to have the road in operation from Lenoir to Collettsville, a distance of ten miles, by December 1. W. S. Harvey is president.

**Montgomery, Ala.**—The Montgomery, Tuscaloosa & St. Louis, it is stated, has absorbed the Tuscaloosa Northern and Montgomery, Tuscaloosa & Memphis, and will be built from Montgomery to Columbus, Miss., by way of Tuscaloosa, Ala. The length of the proposed line is about 140 miles, and it will traverse the Warrior coal fields. A. S. Woolfolk, of Montgomery, and W. C. Jemison, of Tuscaloosa, are interested.

**Pleasanton, Texas.**—Asher Gruen heads a syndicate which offers to build the proposed line from San Antonio to Oakville by way of Campbellton and Pleasanton for a bonus of \$150,000 and the right of way. The proposition will probably be accepted.

**San Antonio, Texas.**—The roadbed of the San Antonio & Aransas Pass is being relaid with new ties between Yoakum and Houston. A number of the bridges and culverts are being rebuilt. Vice-President M. D. Monserrate at San Antonio may be addressed.

**Waco, Texas.**—It is reported that the Gulf, Colorado & Santa Fe will build a line from Valley Mills to Waco, a distance of about twenty miles.

**Welch Glade, W. Va.**—The Welsh people of Webster county are constructing a road fifteen miles long from Pembro to the Buckhannon River branch of the West Virginia Central.

### Street Railways.

**Charleston, W. Va.**—Work on the Charleston Electric Railway has begun, and it is expected to

be completed by January 1. Motors are being ordered. Address W. B. Carter, superintendent.

**Lynchburg, Va.**—Surveys are being made for the proposed extension of the Rivermont street railway. It will be nearly two miles in length. John P. Pettyjohn is president of the company.

**Memphis, Tenn.**—The Memphis Railway Co. is considering the idea of building a bridge on the boulevard, the city to pay a portion of the cost.

**Richmond, Va.**—The Richmond Railway & Electric Co. will erect an iron-truss bridge sixteen feet wide across a branch of the James river at Brown's Island.

**Savannah, Ga.**—The proposed extension to the Suburban & West End Electric Railway will be about one mile in length. Address Superintendent Lazarus.

## MACHINERY WANTED

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

**Belting.**—L. L. Torbert, Society Hill, Ala., wants to correspond with manufacturers of belting and other equipment for mill.

**Boiler.**—The Mound City Brick Co., Moundsville, W. Va., will be in the market within a few weeks for a 125 horse-power second hand tubular boiler with four-inch or four and a half-inch flues.

**Bolt Cutters.**—The Valley Foundry & Machine Co., P. O. Box 64, Johnson City, Tenn., wants to correspond with parties having good second-hand bolt cutters.

**Conveying Apparatus.**—Thomas W. Pitts & Co., Pittston, Fla., will buy elevator for conveying rock gravel to drier bin.

**Crusher.**—The Mound City Brick Co., Moundsville, W. Va., will be in the market within a few weeks for a clay pulverizer and crusher. Want machine to grind coarse gravel and very tough refractory clay and of a capacity of 30,000 bricks daily.

**Drill Presses.**—The Valley Foundry & Machine Co., P. O. Box 64, Johnson City, Tenn., wants to correspond with parties having good second-hand drill presses.

**Drill Presses.**—The Manly Manufacturing Co., Dalton, Ga., wants prices on 20-inch lever drill presses.

**Dump Cars.**—Thomas W. Pitts & Co., Pittston, Fla., are in want of a few dump cars.

**Electric-light Plant.**—Thomas W. Pitts & Co., Pittston, Fla., are in want of an electric-lighting plant.

**Fan.**—The Land Pebble Phosphate Co., Pebble, Fla., wants a wheat fan.

**Hoist, etc.**—Thomas W. Pitts & Co., Pittston, Fla., are in want of hoist and gearing for pumping.

**Lathe and Chuck.**—W. A. Rideout, Bristol, Tenn., wants a second-hand iron lathe from 20 to 24-inch swing, six, eight or ten feet long, with chuck.

**Lathes.**—The Valley Foundry & Machine Co., P. O. Box 64, Johnson City, Tenn., wants to correspond with parties having good second-hand iron lathes.

**Pipe.**—W. F. Dowd, Charlotte, N. C., is in the market for lead pipe and soil pipe.

**Piping.**—Thomas W. Pitts & Co., Pittston, Fla., are in want of piping.

**Planers.**—The Valley Foundry & Machine Co., P. O. Box 64, Johnson City, Tenn., wants to correspond with parties having good second-hand planers.

**Pumps.**—The Laurel Coal Co., Pittsburg, Ky., wants to correspond with manufacturers of pumps (see wind-mills). The company wants to use one for pumping water in tank for locomotive.

**Punching Machines.**—The Manly Manufacturing Co., Dalton, Ga., wants to purchase machines for punching small holes in one-eighth inch thick tensile steel. Quote prices on rapid running machinery with adjustable head.

**Rails.**—Allen Bros. & Wadley, Houghton, La., are in the market for two miles of new or second-hand relaying 35-pound steel T rails.

**Saw Mill.**—L. L. Torbert, Society Hill, Ala., wants to correspond with manufacturers of saw mills.

**Saw Mill.**—Howell & Clark, P. O. Box 544, Aniston, Ala., wants to buy a saw mill.

**Shafting, etc.**—The Valley Foundry & Machine Co., P. O. Box 64, Johnson City, Tenn., wants to correspond with parties having good second-hand shafting, hangers, etc.

**Shingle Mill.**—L. L. Torbert, Society Hill, Ala., wants to correspond with manufacturers of shingle mills.

**Sprinkler System.**—The Lexington Manufacturing Co., Lexington, S. C., is in the market for a sprinkler system for its mill, including outside hydrants, etc.; wants 250 heads.

**Wind-mills.**—The Laurel Coal Co., Pittsburg, Ky., wants to correspond with manufacturers of wind-mills (see pumps).

W. F. Dowd, of Charlotte, N. C., is in the market for all plumbers' staple supplies.

## CANAL WORK, ETC.

**Augusta, Ga.**—A special committee, including the mayor, has been appointed to prepare plans for a canal to carry away overflow water from the Augusta power canal during the high-water season. The work will include a dam. Address City Engineer Davidson.

## TRADE NOTES.

The Webster & Perks Tool Co., of Springfield, Ohio, has been awarded a medal by the World's Fair judges for aluminum reducing wheels for engine indicators.

The Philadelphia Traction Co. has placed the order for their new power-house with the Berlin Iron Bridge Co., of East Berlin, Conn. The side walls will be of brick and the roof will be of iron. The building is 190 feet in width and 168 feet in length, divided into boiler-room, engine-room and dynamo-room.

MESSRS. BRYAN & CO., Detroit, Mich., continue to make shipments of the well-known Colliery cupola furnace, and have recently furnished Messrs. W. Clendinning & Son, Montreal, P. Q.; the Eastwood Wire Manufacturing Co., Belleville, N. J.; two for the Ingersoll-Sergeant Drill Co., New York, N. Y., for their new shops at Easton, Pa.; the second one for Messrs. F. E. Meyer & Bros., Ashland, Ohio, and the Clinton Plow Co., Clinton, Mich.

E. T. BARNUM, wire works, of Detroit, Mich., had for an exhibit at the World's Fair a large house made of ornamental wire work and filled it with wire and iron goods of his manufacture. This was a novel idea and made his exhibit very attractive. Mr. Barnum has just received the highest award upon steel prison jail cells, cheese safes, wire, antique brass bank and counter railing and wire and iron fences. These goods are Mr. Barnum's new and original designs and speaks well for his work in competition with so many others at the World's Fair.

In a recent issue we called the attention of our readers to the handsome exhibit of Penberthy injectors in machinery hall at the Columbian Exposition. We are pleased to learn that the judges have awarded to this celebrated injector the medal of merit. During the six and a-half years this injector has been on the market nearly 75,000 have been placed on boilers all over the world, and everywhere they are used they have given perfect satisfaction. They are manufactured by the Penberthy Injector Co., of Detroit, Mich., and we wish to congratulate them on the success they have achieved.

THE Stow Manufacturing Co., of Binghamton, N. Y., inventors and manufacturers of the Stow flexible shaft, reports that its trade up to October 1 shows an increase over that of the corresponding months of 1892. Considering the general depression this, perhaps, should be satisfactory to them, but its expectation of doing 100 per cent. more business in 1893 than in any preceding year will hardly be realized. During the past two months it has greatly improved its plant, adding largely to its boiler capacity, etc. This demonstrates its confidence in the future. It reports a decided improvement in the October sales over that of the preceding month.

JOHN C. N. GUBERT, No. 115 Broadway, New York, manufacturer of the "swinging hose-rack," has lately furnished racks to be used in connection with interior hose equipment in the following buildings: J. B. Stetson & Co., Philadelphia, Pa.; Wm. Ayers & Co., Philadelphia, Pa.; T. J. Stewart & Co., Jersey City, N. J.; Chesapeake & Ohio Railroad depot, Lynchburg, Va.; Valley Worsted Mills, Providence, R. I.; Broadway Cable Railway power-house, New York city; School of Trades Building, New York city; Union school-house, Mt. Vernon, Ohio; Larimar Building, Mt. Vernon, Ohio; Brehm brewery, Baltimore, Md.; Scranton Traction Co., Scranton, Pa.; North Shore Traction Co., Lynn, Mass.; Sisters' Columbia Hospital, Great Falls, Mont.; the Catholic church, Portsmouth, N. H.; private residence of Mr. A. J. Du Pont near Wilmington, Del.

## TRADE LITERATURE.

We have received from the Webster & Perks Tool Co., of Springfield, Ohio, a neat little pamphlet illustrating and describing the aluminum reducing wheel for engine indicators which is made by this company, and which has just been awarded a medal at the World's Fair.

## Missouri Lead and Zinc.

JOPLIN, MO., October 23.

The ore markets have experienced another decline and during the past week values showed a decidedly lower range. The price of zinc ore declined to \$16.00, and the average price fluctuated between that figure and \$17.00 per ton. The price of lead ore declined to \$16.50 in some camps, but \$17.00 was the lowest price paid here, while there was an advance on Saturday to \$17.50 per thousand. The whole market is without buoyancy, and the outlook for zinc ore is not considered very bright at the moment. There is a light demand for spelter, and as long as the iron trade is dull there will be no improvement in this commodity. The sales last week were as follows:

Districts.	Zinc. Pounds.	Lead. Pounds.
Joplin.....	792,930	270,640
Cartersville.....	731,730	120,460
Webb City.....	379,510	93,670
Galena.....	862,000	84,000
Zincite.....	71,120	3,410
Lehigh.....	41,640	
Oronogo.....	42,660	113,360
Alba.....		
Total.....	2,932,990	687,440

District value, \$35,250.

Mr. Arthur Winslow, State geologist for Missouri, is now preparing his report on the lead and zinc ores of the State. The statistics which his report will contain will be carefully compiled from all available sources, and will form a valuable book of reference for those interested in mining industries. The item given in the table below represents the production of zinc and lead ores in Jasper county, Mo., and will accompany Mr. Winslow's regular report:

## PRODUCTION OF JASPER COUNTY.

	Lead ore. Tons.	Zinc ore. Tons.
1860 to 1869.....	1,000	
1860 to 1869.....	2,000	
1870 to 1879.....	102,600	37,600
1880 to 1892.....	117,000	720,000

At Webb City there was another drop in ore, and the sales show a corresponding decrease. Zinc ore went off another dollar, the top price paid being \$17.50. Lead declined to \$17.00, but advanced fifty cents on the 21st on the strength of large shipments of pig lead from St. Louis.

Speers, Weaver & Co., Oronogo, are sinking a new shaft. The Margerum Mining Co., Oronogo, is going to put up a new 100 horse-power engine to run the pumps. As soon as this is done all three of the pump shafts will be sunk deeper in order to drain several shafts that cannot now be worked. Stamp & Morris, at Cartersville, have the foundations in for their steam plant, which they expect to complete in about three weeks. It will be one of the best equipped steam plants in the district. Clay & Wymer have leased eight lots on the Martin land at Galena, Kan., and are sinking a pump shaft. They are down seventy feet and will sink until they reach plenty of water. They will move the Little Josie plant from Joplin. They are sinking three shafts on the property and have struck good ore all around. Grantham & Stevens, on the McCann land at Galena, are sinking deep so that their pumps will drain the land around their lot. The Advance Company is sinking a shaft on its 10-acre lease of the Biddington & Co. land at Spring City (P. O. Lowry City) and is down eighty feet.

It is stated that local and Eastern capitalists have a plan on foot to build reduction works at Joplin, Mo., sufficient to consume the greater portion of the zinc ore produced in that district, and to have a warehouse in connection with it; to purchase ore by assay and to manufacture oxide of zinc. It is also stated that indications point to the early commencement

of the enterprise, which, when carried out, will be most advantageous to mine owners and operators.

## Southern Real Estate Matters.

G. C. JONES, H. H. Cabaniss and others have incorporated the Capital Real Estate Co. at Atlanta, Ga., to transact business as indicated in the title. The capital is \$50,000.

THE Law Reform Association of New Orleans has taken up the matter of the erection of a new court building in that city, and has appointed the following committee to urge the importance of the matter upon the city council: Thomas J. Semmes, chairman; H. C. Miller, E. A. O'Sullivan, E. H. Farrar, J. W. Gurley, Jr., J. N. Augustin, G. A. Breaux, Wynne Rogers and B. McCloskey. There is much solicitude among the lawyers regarding the safety of the court records, deeds and other papers, which are of great value and are at present in danger of destruction by fire.

A REAL estate deal was closed at Norfolk last week in which Dr. Richard H. McDonald, of San Francisco, Cal., transferred to James B. Higgin and Horace W. Carpenter, of New York, sixteen parcels of land in Atlantic City ward containing in the aggregate 168 acres, and a tract of 600 acres in Norfolk county, near Great Bridge, for \$180,000. The bulk of the property lies on Church street extended, in front of the Catholic cemetery and the new city park on the Spratley tract. The land is high and dry, and contains some of the finest sites for private residences in the vicinity of Norfolk.

THE Omaha & South Texas Land Co., of Houston, Texas, of which O. M. Carter is president and D. D. Cooley general manager, and which passed into the hands of a receiver in July last, is again in the hands of its officers. The company, previous to its affairs going into the receiver's hands, had expended many thousands of dollars on Houston Heights. Among the manufactories located at the Heights where a car factory, a furniture factory, a brick and tile works, a spring-bed and mattress factory, electrical works, a saw mill, etc. The Consumers' Oil Co. has also located its plant there and is in full operation. Besides these, the company established drainage and put in water works, an electric-light plant and an electric car line. The work at Houston Heights will be carried forward at once by the officers of the company according to the original programme. The projectors of the enterprise have great faith in the successful results of the undertaking and will prosecute their plans steadily towards perfection.

THE annual meeting of the stockholders of the Chatham Real Estate & Improvement Co., of Savannah, Ga., was held in that city on the 10th inst. Capt. John Riley was elected chairman, and Mr. F. W. Garden, secretary. Col. J. H. Estill, as president of the company, presented his report and reviewed the operations of the company during the year. He stated that it was very gratifying to report that the company had had another prosperous year, and with a normal condition of business the real estate of the company will find ready sales and realize large profits to the shareholders in series A. Mr. M. J. Solomons, secretary and treasurer, submitted his report, showing the condition of the two series, A and B, up to June 30, the end of the fiscal year for series A, and July 31, the end of the year for series B. The election for directors resulted in the unanimous election of the old board as follows: H. P. Smart, Lee Roy Myers, C. S. Connerat, F. H. Thompson, W. G. Cooper, H. C. Cunningham, William Kehoe and M. J. Solomons. Col. J. H. Estill was unanimously elected president. A resolution was adopted authorizing the directors to

take such steps as may be necessary to amend the charter of the company, permitting the board to increase its capital stock from time to time to any sum not exceeding \$1,000,000.

THE Houston (Texas) Post has this to say about the condition of the real-estate market in that city: "There are many men from the North and Northwest just now in Houston, and the hotel corridors bring a remembrance of a time, not yet very distant in the past, when it seemed that about half the world had come to Houston to take a look at real estate. Men in the business tell Post reporters that many sales of small tracts of outside property have been made in the last week, and that the prospect is splendid for a fine trade in realty from now on during the winter. These sales are said to have been made mostly to men from Iowa, Nebraska and other Northwestern States, who are seeking a farming country where they can buy good land in small quantities at a reasonable price. The purchasers are practical farmers, and when they come will be here to work. Last week a party of a dozen men from Iowa came to Houston, and the next day went out to Dayton to see the rice farm which Captain Joe Davis put in as an experiment. They saw and were pleased, so much so that they went back home with the avowed intention of moving to Harris county. One of them told a Post reporter that the result of the visit would be an investment of not less than \$75,000 in Harris county lands, all by practical farmers. Real-estate men also report renewed inquiry for business property, and it is said a dozen good deals are on foot. The names of those in the deals are withheld, however, 'for fear of an intervention,' as one old dealer expressed himself to a reporter. The fact that people are here to see the lands about the city and that inquiry is being made for property inside is most encouraging, especially at this time, when the cry of hard times is heard in the land. That people have money is apparent, and that they only require proper inducements to invest it is equally apparent."

## Hunters' Rates—Dates of Sale and Limits.

The Cincinnati, Hamilton & Dayton Railroad will make hunters' rates as usual. To upper Michigan, Wisconsin and Minnesota tickets will be on sale September 20 to November 15, 1893, inclusive, with final return limit November 30.

To lower Michigan (Mackinaw City and south) November 1 to 25, inclusive; final return limit November 30, 1893.

To Missouri from September 20; return limit thirty days from date of sale, but not later than March 1, 1894.

To Mississippi from September 20; return limit thirty days from date of sale, but not later than April 30, 1894.

To Arkansas from September 20; return limit thirty days from date of sale, but not later than May 1, 1894.

## A New Through Sleeping-Car Line from Chicago to Seattle

Via the Chicago, Milwaukee & St. Paul and Great Northern Railways has been established, and first-class sleeping cars will hereafter run daily from Chicago at 10.30 P. M., arriving at Seattle 11.30 P. M., fourth day. This is undoubtedly the best route to reach the north Pacific coast.

For time-tables, maps and other information apply to the nearest ticket agent or address Geo. H. Heafford, general passenger agent Chicago, Milwaukee & St. Paul Railway, Chicago, Ill.

## Queen &amp; Crescent Magazine.

The Queen & Crescent route is preparing to issue an elaborate publication in magazine form descriptive of the different sections of the South tributary to its lines.

Capitalists, tourists and business men are not likely to forget the Southern cities so long as the Queen & Crescent route can reach them with this artistic publication.

Copy of this magazine will be mailed to any address on receipt of ten cents in postage stamps. Address W. C. Rinearson, general passenger agent, Cincinnati, Ohio.

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